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HEALTH AT ITS BEST V. CANCER

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THE WAY TO KEEP WELL

PRACTICAL HOME HINTS ON COMMON AILMENTS.

BY C. STANFORD READ, M.B. (LOND.),

London County Council Lecturer.

"One of the best books on hygiene written in a popular style for the layman."—*The Manchester Guardian.*

"The author touches on many useful points and gives much sound advice."—*The Lancet.*

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LONDON: T. FISHER UNWIN

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HEALTH AT ITS BEST

V.

CANCER

BY

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AUTHOR OF

"CANCER: ITS CAUSATION AND TREATMENT WITHOUT OPERATION,"

"THE CANCER PROBLEM IN A NUTSHELL," AND "THE
WOMAN IN HEALTH AND SICKNESS"

*Treatment advocated by Dr. Bell,
palatinoids of Thyrocol etc.*

See page 239.

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T. FISHER UNWIN

LONDON

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1908



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PREFACE



ANY attempt to solve a problem, which, so far, has baffled many highly competent investigators, cannot but prove laborious. In many instances, however, these have succeeded in removing certain difficulties out of the way, thus affording no small assistance to their successors in the field of research. Notwithstanding this help, however, it is hardly to be expected that disappointment after disappointment will not have to be encountered, and hopes of its solution time after time to be falsified. Many plausible theories will be evolved, only to be abandoned as untenable, though, for the moment, they have appeared to be beyond contention. Yet failure in one

direction often points to success in another, and so light gradually begins to penetrate, and eventually dissipates, the fog which so recently had blurred one's vision.

This applies in a special manner to the efforts that have been made to solve the cancer problem.

How frequently has it been proclaimed that a cure has at last been discovered for this horrible disease, which experience has not been permitted to verify, and yet, that a cure must exist no one, I hope, will be so pessimistic as to doubt.

Is it not, however, quite as important to endeavour to ascertain its causation, so that we may be enabled to indicate what preventive measures it would be wise to adopt? for I am convinced this is the course we shall be compelled to pursue if our desire to stamp out the disease is to be realised. It is the realisation of this hope becoming an accomplished fact I look forward to with every confidence, and it is because of this that I have in the

following pages been guilty of repetition in so many instances, which I trust to the generosity of my readers to forgive.

I have found it quite impossible not to err in this respect, if error it be, as, dealing with a subject of such vital importance, I feel it is hardly possible to emphasise too forcibly those points which, from my point of view, bear so essentially upon the causation, prevention, and cure of the disease under review.

R. B.

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INTRODUCTORY



Is it not to be regretted that while there is so little hesitation in giving publicity to evidence that is led in the divorce courts and in such cases as the Thaw trial, there seems to be erected a sentimental barrier, opposing the publication of plain and important facts, which, if recognised and properly understood, would tend not only to ward off disease, but prolong life? I therefore venture to table a protest against such prudishness, and in this volume will attempt to demolish this crust of false modesty, so that my readers may have the benefit of knowledge which will prove invaluable to them, but which they are at present, to a considerable extent, denied.

Ours is the only country where such a prudish condition of affairs survives, the public being the sufferers. This is apparent when we acknowledge, as we ought to do, that not only would the amount of disease, which is so prevalent, be materially modified, but the death-rate markedly reduced. Were a little more information supplied on certain important points which is at present not within reach of, or at all events not paid sufficient attention to, by the general mass of the people, most desirable results would speedily follow.

It is now more than a quarter of a century since I first called attention in the *Lancet*—which I again refer to later on—to the fact that constipation is not only a disease of serious import, but also a most potent factor in predisposing to disease of every description. In that paper I was able to demonstrate that anæmia, so common in young women, and upon the existence of which so many diseases—notably tuberculosis—are liable to super-

vene, is in 99 per cent. due to this cause alone. And no one, who has any acquaintance with the subject, will deny the fact that it is invariably the starting-point of gout, rheumatism, and cancer.

During a lifelong study I have invariably ascertained where those diseases were present that constipation had been pre-existent.

The views I then expressed, two years afterwards, were reiterated in the same journal by a well-known London physician. Notwithstanding this, the public to-day are little better informed on this vital question than they were before the publication of these papers.

When we recognise the fact that Metchnikoff—one of the greatest bacteriologists of the age—has estimated that in the intestinal canal there are developed, daily, the astounding number of 28,000,000,000 of bacteria, can we be surprised that with this fauna within us,

if it be retained for an undue length of time, its toxic effect upon the blood will prove serious? It would be unreasonable to think otherwise, notwithstanding the knowledge we possess, that the evil effects of some of these are counteracted by others, which are antagonistic to the former. The fact, however, remains that the presence of these sets up putrefactive changes in the contents of the bowel, which results in the development of toxins (poisons), which, if constipation be present, will speedily be absorbed into the blood, producing in it changes which are inimical to health. No one needs to be told that every organ, and every tissue of the body, are dependent for their nourishment upon the vital fluid. If, then, this is vitiated, as it certainly is in these circumstances, does it not stand to reason that the functional activity of the various organs will be handicapped very considerably, and consequently their resisting power to disease seriously reduced? The nervous system will probably be the

first to manifest the effects of this contamination of the blood stream, and this will be indicated by depression of spirits, irritability of temper, a chilly feeling over the body, headache, &c.

The palpable effects will be a dusky complexion, dark rings round the eyes, cold feet, bad taste in the morning, foul breath, loss of appetite, feeble digestion, and disturbed sleep.

Now if such a state of matters be permitted to continue for a lengthened period, if we persist in neglecting the sanitation of the alimentary canal, and neglect those dietetic measures which conduce to its hygienic condition, will any intelligent person be bold enough to maintain we have any right either to a healthy mind or a healthy body? And why should every one not be educated up to the point of enabling one to avoid such a contingency? So far as I can learn the young receive no education upon the science of hygiene. Time is devoted to

instruction in religion, which is right and proper, but after our moral culture has received the attention deemed essential to promote its growth and development, surely some thought should be devoted to those fundamental principles upon which depend a healthy frame and a vigorous old age. What ought to be aimed at is instruction in the science of hygienics and dietetics, with a view to adopting measures which shall have a prophylactic (preventivē) effect upon disease, and we know that prevention is not only better, but much more easily accomplished than cure. Moreover, when disease has been permitted to assert itself, the case must of necessity pass into the hands of the doctor. Do not, then, allow it to pass into those of the quack. Unfortunately the belief in quackery is born of human folly, and will continue to exist as long as that endures. The only remedy is the spread of scientific light among the people.

Dietetics, as will be readily understood,

play a most important part in influencing not only the development, but the character of intestinal micro-organisms.

It is beyond doubt that food exerts a remarkable influence on the flora of the intestines. For example, these organisms are vastly more numerous in infants receiving their nourishment from cow's milk than in those who are suckled by their mothers—which fact is referred to in the following pages. Hence the greater amount of gastric troubles prevailing amongst children who are reared artificially.

HEALTH AT ITS BEST *VERSUS*
CANCER

HEALTH AT ITS BEST v. CANCER



CHAPTER I

HEALTH AT ITS BEST *versus* CANCER

I WONDER if many pause to consider the fact—for fact it is—that so very few die a natural death. As a rule it is brought about by a slow suicide, the process extending over a period of years, more or less prolonged according to the mode of life pursued by the individual, yet suicide all the same. Nature's laws are systematically contravened on every hand. Habits—prejudicial to health and longevity—which may have been inaugurated and indulged in by our ancestors, and adopted by us, or, in many instances, acquired by us, are persistently being indulged in, not only

to our bodily hurt, but also—and I say this advisedly—to our moral detriment.

Natural History teaches us that the normal tenure of the life of an animal should extend to eight times that of its maturity. Now maturity in man is attained at, about, twenty-one years; therefore the normal life of man should not terminate before 160 years, or even beyond that, and disease have nothing to do with its termination, for death should only consist of an unconscious transition from the mortal into an immortal state of existence; the shell of the chrysalis, as it were, being left behind, while the disembodied spirit, traversing the unknown, reaches its destined abode.

As things are at present, this period of longevity is never attained, except, perhaps, amongst the Bulgarian peasantry, who live a simpler life than any other people we are acquainted with. Thus proving that the human frame was never intended to contend against the ill-usage it is con-

tinuously being subjected to, in consequence of errors in diet.

What we term "High Civilisation" has adopted a mode of life and thought which quite ignores the fundamental laws, the tabernacle of the human body—the fountain-head of reason—must be subject to, if its integrity is to be maintained. It is the custom of the age to spend immense sums upon the study of the heavenly bodies and other abstruse problems over which we can exercise not the slightest control, while the little information obtained is of little practical value after it is acquired, for the simple reason that it is impossible to apply it to any practical purpose. Curiosity may certainly be gratified by the theories promulgated, but that it can be satisfied, or any benefit conferred, is very doubtful. Notwithstanding, the study is pursued with an ardour which is remarkable, if nothing else can be said in its favour, while the human frame, which is more complicated

and more interesting than any planet, and is by far the most valuable asset we possess—except by a limited number—receives little or no attention. Indeed, a healthy body and a ripe and happy old age would appear to count as nothing compared to the temporary indulgence in luxuries, which would soon cease to appear as such were a more simple mode of life cultivated and hygienic laws inculcated.

How few realise the fact that there is ample potentiality in man, if he will only conform to those laws which have been instituted for his guidance, to enable him to resist those diseases which wreck his health and shorten his life. It was never intended that his footsteps should be arrested by gout or his joints and muscles incapacitated by rheumatism, his blood-vessels be the carriers of disease germs, or undergo a degeneration which renders them liable to rupture. He was never intended to end his days in his prime as a paralytic, or that his stomach be a source

of distress instead of comfort. Yet all these results, and many more of an equally unwelcome character, might be, and would be, avoided were a little more attention to, and observance of, Nature's laws to enter into his daily routine.

Man as a rule comes into the world a plump, healthy individual, with all his organs working harmoniously together, and it only requires careful attention to enable him to continue in his pristine condition, grow up to vigorous manhood, and proceed to healthy old age. Doubtless he will be assailed by many enemies in the shape of disease germs, but these he will be able to encounter with results favourable to himself and he will also be enabled to weather the various storms, which he will undoubtedly encounter, in the form of epidemics, if he be only willing to conform to those laws which a wise Providence has laid down for his guidance. His body is the ship which is destined

to carry him over the sea of life, and he is the captain who is responsible for the course taken. What would we think of the mariner who has been provided with a trim, well-built vessel, destined for a distant port, who did not take every precaution against disaster? Would he permit his furnace to be supplied with improper and useless fuel, his compasses to be out of order, or his steering gear to be at fault? Would it be excusable were he to neglect to consult his chart repeatedly, take his daily reckonings, look out for rocks, and consult his barometer, so that he may be prepared for, what he calls, dirty weather. Otherwise his voyage would, sooner or later, come to an untimely end, just as the life of a man will who does not take advantage of those beneficent and easily obeyed instructions laid down for him by his Creator, who so constantly manifests the keenest interest in his welfare.

If we consider for a moment those substances which are essential to the life

of man, viz., air, water, and food, it goes without saying that to obtain the most satisfactory results these must be pure and wholesome. It is essential, however, that to be able to obtain satisfactory results, the most careful attention be devoted to these necessities of our existence; that this attention be inaugurated at birth by the parents, and continuously exercised by them during childhood, and that the supervision be uninterrupted until the hygienic habits, thus acquired, be thoroughly established.

The first principle to be considered is the supply of an abundance of fresh air, and the avoidance of stuffy rooms, more especially of sleeping apartments. Mothers make a great mistake when they suppose that an infant is more liable to suffer from a free circulation of fresh air than an adult. Unfortunately for the child, it is a mistake that is almost universally made in civilised communities, and invariably with disastrous results.

I am thoroughly convinced that were more common sense displayed in this direction, we would in a short time cease to hear of tuberculosis, and the various chest affections amongst young children which have hitherto claimed so many victims. No living being can possibly maintain its inherent power of resisting the attack of disease germs—and every affection of the air passages is due to the invasion of these—if it is condemned to live in a vitiated atmosphere; an atmosphere, moreover, which, while it is prejudicial to the vital vigour of both animals and plants, thus rendering them a more easy prey to disease, has no such debilitating effect upon disease organisms, but on the contrary would seem to endow them with greater potency and virulence. It is only those whose vitality has become impaired by a persistent disregard of hygienic and dietetic laws, who ever need have the slightest fear of disease.

Man, as a rule, dies of a long process of blood-poisoning, if his life is not cut short by some acute disease. His organs of excretion have been gradually undergoing a process of impairment, the consequence of an injudicious mode of living, until, eventually, they become quite incapable of discharging the effete matter which it is essential should be uninterruptedly eliminated from the vital fluid if its integrity is to be maintained and life continued.

Then it must be borne in mind that the method of breathing has a great deal to do with the preservation of health. The natural channel for air to enter the breathing apparatus is by the nose. This we will see exemplified if we observe the breathing of an infant. We also know it is the habit of all savage races, and animals, to breathe by this passage, and it proves beneficial in two ways at least. First, the air in its progress through the nares, becomes warmed before entering the lungs, and second, it is freed to a larger extent from impurities that

may be contained in the atmosphere, while a secretion of the mucous membrane, supplementary to that of mucus, named mucin, and which possesses antiseptic properties, has a destructive effect upon disease organisms coming in contact with it. Thus it is only possible for a sterilised air to gain access to the lungs when the mucous membrane is in a normal condition. But it is also only possible for the secretion of this membrane to continue in a normally vigorous condition when an otherwise pure atmosphere is supplied, and it is only when this is not departed from that mucin will be present. Now, as we know, any irritant applied to the nostril, whether this be in the form of a chemical agent, a vitiated atmosphere, or cold, will immediately result in a hypersecretion of mucus, thrown out to protect the delicate membrane from the irritating contents of the air inhaled. Immediately, however, that the mucus ceases to be normal in quantity, the mucin ceases to be co-

existent, and therefore disease organisms are in these circumstances enabled to obtain a footing. In consequence of this we are able to account for colds being contracted in crowded and badly ventilated enclosed spaces, where in all probability a draught of cold air also exists, which, by reducing the bodily heat, still further depresses the vital powers, thus favouring the invasion of disease germs.*

It must be obvious to every one, that when one is exposed to cold in the open, which invariably produces a more or less copious secretion of the mucous membrane of the nasal passages, this invariably passes off without any ill-effects supervening. And the reason is the palpable one that the stimulus consists entirely of fresh air, cold though it be; so we may safely conclude that what we designate a cold in the head, is not due to cold *per se* as is popularly supposed, but to circumstances which depress the vital forces, thus rendering the

* This subject receives special attention in Chap. V.

body more sensitive to chill and at the same time providing a suitable soil for the growth of disease organisms. Now a still atmosphere, especially when this is associated with an absence of sunlight, is always more liable to contamination than an atmosphere in motion, and which, if not at the moment, at least recently, has been exposed to light rays. The former, therefore, provides a suitable nidus for the multiplication of microbic organisms. It is not difficult, therefore, to estimate the value of an airy, thoroughly ventilated and well-lighted dwelling, as a prophylactic agent; and were there not in existence such a senseless horror of fresh air, which, I may add, is altogether engendered of ignorance, we would very soon hear a great deal less of the various chest affections which are so prevalent at the present day. Cleanliness of the air is quite as important as cleanliness regarding food, and who would not shudder at the thought of unclean food?

We are constantly hearing of people suffering from a "chill," as it is generally termed. Sometimes it is designated as a chill on the liver—whatever that may mean; but then we must remember the liver is a big organ, therefore it is only right that it should bear a lot of blame, that is if responsibility is reckoned to be commensurate with size, whether it is guilty or not. Then we hear of chills on the stomach, the lungs, and various other organs, which means there has been some indiscretion one way or another. The blood has become tainted, either by vitiated air, contaminated water, unwholesome food, or an unsanitary state of the large intestine, when of course the body becomes highly sensitive to changes in the temperature, and the last straw is a current of cold air, which still further prostrates a vitality, already reduced much below par, with the result that whatever micro-organism happens to be paramount at the time, and has already been able

to gain an entrance into the citadel, now takes possession, claims a hospitality, and will take no denial. Nature's recuperative forces, however, soon come into action, when the invader is ignominiously expelled and in a short time the health of the patient is restored.

Let us hope the evil-doer will take a lesson by the mild chastisement that, this time, has been inflicted upon him, but let him at the same time bear in mind that not infrequently the punishment is death. Is it not absurd, when we are perfectly cognisant of the fact, and have frequent experience of it, that the human frame is able to withstand any amount of cold, to the extent even of becoming benumbed by it, without sustaining any evil effects, or resulting in what may prove to be a serious illness, to attribute this to a passing feeling of chilliness?

Having considered the art of breathing, let us now devote a little attention to that of drinking.

Drinking is so closely associated with health and is not unfrequently a symptom of disease that no apology is necessary for bringing the subject prominently forward for careful consideration. To enable one to gain proficiency in the art of drinking, a number of physiological facts will require to be passed in review. This will become apparent when we are reminded that more than two-thirds of the weight of the human frame is made up of water, and that life is dependent upon those vital changes which are constantly succeeding each other in the various fluids of the body.

The relative amount of water found in the various tissues and secretions varies considerably; the teeth containing only 10 per cent., whereas the saliva contains 99·5 per cent. of water. These are the two extremes. In bone there is 13 per cent. of water, in muscle 75 per cent., brain nearly 79 per cent., blood 79·5 per cent., bile 88 per cent., milk 88·7 per cent., urine 93·6 per cent., and so on.

With this information it will not be difficult to estimate the importance of water as a constituent of the animal frame. We have only to drive off the water from a tissue such as muscle or tendon to find all its characteristics, appearance, and properties destroyed. Seeing, then, the great preponderance of fluids over solids in the animal organism, and the important *rôle* they play, we cease to wonder that hunger can be more easily tolerated than thirst, and life sustained for a considerable period if water alone is supplied in sufficient quantity.

It has been estimated that an ordinary-sized adult will take into his body daily about $4\frac{1}{2}$ pounds of water and that about $\frac{1}{2}$ pound will be formed by chemical action. On the other hand, of the total amount, there is excreted from the skin 30 per cent., lungs 20 per cent., bowels 4 per cent., kidneys 46 per cent. But, of course, these proportions will vary in different circumstances. For example, in hot weather the skin will act more freely and the

kidneys will be less active than would be the case were the temperature lower, when, of course, the conditions will be reversed. And as we know thirst is invariably commensurate with the activity of the skin and kidneys, though sometimes, as in fever, there is excessive thirst, though the functional activity of these important organs is then in almost complete abeyance. Yet parched nature calls for cold water to repair the loss of fluid which is being carried off by radiation, for in the circumstances it does not pass by the ordinary channels, these, viz., the sweat glands, the kidneys and the mucous membrane of the lungs, being placed completely *hors de combat* by the poisonous materials, or toxins, as they are termed, circulating in the blood, and to whose presence there the high temperature of fever is due. Fever, then, can hardly be described as a disease, but rather as a symptom or outcome of one form or other of blood-poisoning, these varying according to the specific poison

present. Various though the causes of fever may be, there is one constant effect produced, which is an increase of nitrogenous products such as uric acid or urea, and it is to retention of the latter in the blood that coma so frequently is an accompaniment of the acute febrile condition. The art of drinking, then, in such circumstances must be looked upon as of the highest importance, as not only the organs above mentioned are incapacitated, but bile, gastric juice, saliva, &c., cease to be secreted. If, then, we can administer fluids in such a manner as to dilute the poison and reduce the temperature, we will thereby succeed in promoting a condition of the blood less prejudicial to the functional activity of those organs of secretion upon which the elimination of impurities from the blood entirely depends. And once this cleansing process has begun, convalescence will speedily be established and will rapidly progress if the skin and kidneys are flushed by a plentiful supply of fluid and the

lungs supplied by an abundance of fresh air.

Now, if the art of drinking is so important in the above circumstances, it is equally if not more important in our ordinary daily life, as if properly cultivated it may and will prove the means of assisting very materially in the preservation of health. The more we encourage the action of the skin and the lungs, not only do we promote a free escape of heat but also of poisonous excretory matter. This, of course, can only be accomplished by judicious drinking, which will not only influence the secretion of the skin and lungs—which are the principal media for regulating the temperature of the body as well as being purifiers of the blood—but of the kidneys also, upon whose healthy activity so much depends.

In dealing with the art of drinking we must bear in mind there is also a vice of drinking, with which we have nothing to do at present. When, then, is the time

to drink? I say any time except during meals. The food should never be washed down by any other fluid than the saliva. Were this rule more strictly observed we would hear much less of dyspepsia, and fewer people would be overburdened with an undue deposit of fat. When the meal is finished, the food having been thoroughly incorporated with the salivary and gastric secretions, you may take what fluid you feel inclined for, and there is no limit as to quantity. My conviction is we do not drink half enough between meals. If we keep the skin and kidneys actively employed by imbibing freely of non-alcoholic beverages—and it is impossible to overtax them if we confine our drink to what nature has provided for us in the way of fluid—we will be rewarded by enjoying all the comforts of a pure and therefore healthy blood stream, for the simple reason that every organ of the body will benefit thereby. The art of drinking may be cultivated with great advantage for two most

important purposes at least. The first, as will have been inferred from the above remarks, to promote health, and the second to assist in the restoration of health.

We should never overlook the fact that there is constantly being accumulated in the blood not only waste matter resulting from chemical changes taking place in the upkeep of vital energy, but also toxins absorbed from the intestine, these being present in larger quantity if constipation is coexistent and less so as the sanitary condition of the blood approaches perfection. Now the blood can only be freed from this noxious material by means of the lungs, skin, and kidneys, so it is not difficult to see that the more actively employed these important organs are kept, the healthier the various organs of the body, and the individual as a whole, will be maintained. When therefore active exercise is withheld, as in sedentary occupations, it is not difficult to conceive there will be a tendency towards an accumulation of

effete matter within the vital fluid, and this will be accentuated if the atmosphere of the apartment which the person occupies becomes vitiated in consequence of deficient ventilation. Lethargy, loss of appetite and dyspepsia will, as a rule, supervene, and the health as a whole will sooner or later suffer, and if this unhygienic mode of life is persisted in, changes in the blood will be certain to follow, which in all probability will culminate in gout or possibly organic mischief of graver import. Now, such a catastrophe would be much less likely to ensue were the simple precaution of drinking from a pint to a pint and a half of water during the forenoon and also during the afternoon resorted to. It will also prove a wise proceeding if men of sedentary habits especially would, during the process of dressing, slowly sip at least a pint of hot water. This would stimulate the circulation in the lungs, skin, and kidneys, and prove of immense service in promoting the secreting power of these

important organs, and at the same time prepare the stomach for the reception of food. While this advice is specially directed to those who are deprived of necessary exercise, it will also prove of service to those who are more fortunately situated. Those organs, let me add, can never be overworked if they are supplied liberally with that fluid which nature has provided so liberally for our use.

On the other hand, when an abundance of exercise enters into the daily life, whereby the circulation in the skin and mucous membrane of the lungs is augmented—it may be to the full expansion of the network of blood-vessels which ramify in every direction over these surfaces—the loss of fluid from the blood will create a demand for liquids which it will be impossible to resist. Thus by flushing the blood by means of repeated supplies of water in one form or another, while the secreting surfaces are in active operation, the vital energy of every organ of the body is bene-

fited, as the more freely these secreting membranes act the greater amount of waste material will be eliminated from the vital fluid. If, however, the temperature should be reduced so far as to interfere to some extent with the activity of the sweat glands, the benefit of exercise will by no means be nullified, as in these circumstances the functional activity of the kidneys will receive the stimulus diverted from the skin while the lungs will continue to act unimpeded.

That the art of drinking has not received the attention it deserves goes without saying, seeing that not only health may be preserved on the one hand and disease alleviated on the other by careful study of the subject; and this fact, I fear, has been sadly overlooked. Of course, it is not obligatory to confine our beverage to water as it is provided by nature. It is essential, however, that whatever be the source of supply this must be uncontaminated. I need hardly state that there is even now,

though to nothing like the extent what formerly was the case, an enormous amount of disease contracted from drinking impure water. The disappearance of cholera and the diminution of typhoid fever and diphtheria are entirely due to an improved water supply.

For the man whose habits are sedentary the following routine might with advantage be followed: 1. Two tumblerfuls of hot water before breakfast, which will, as I have mentioned, not only have the effect of preparing the stomach for breakfast, but will tend to act as a slight laxative and also promote a healthy action of the excretory organs before mentioned. 2. At breakfast a large cupful, or two if desired, of tea which has not been infused for more than three minutes. This will prove quite sufficient to abstract all the aromatic constituents of the leaves, which are comparatively innocuous, while the undesirable tannin and gummy extracts will be left behind, and it is to the latter the injurious effects of tea-drinking are chiefly due. I

would repeat, however, that this portion of the meal should be left until all the solid portion has been disposed of. 3. During the forenoon and afternoon either plain or aerated water may be the beverage and to the amount previously indicated. 4. After lunch either a tumblerful of water, a bottle of ginger beer, ginger ale, or lemonade, soda and milk, or half a pint of cider. 5. The same after dinner, and—6. Before retiring a tumblerful of cold or aerated water or milk and soda. Of course there will be other fluids partaken of during the course of the day. These will consist of the watery constituents of the food, of which more particular mention may be made of milk, fruit, and vegetables, all of which should enter to a large extent into the dietary.

Now, it stands to reason, if we are to obtain the full benefit which the lungs, the sweat glands and the kidneys are able to confer, it will be essential to adopt measures to keep them in good working order. The lungs, for example, will demand an un-

limited supply of fresh air. The skin must be kept thoroughly cleansed by a bath every day, followed by a smart rub down with a rough towel. Great advantage will also be reaped by a visit to a Turkish bath two or three times a week, or, what is not a bad substitute, a cabinet bath may be used in one's bedroom three or four times a week. This should be followed by a tepid bath, or a sponge down with tepid water, after which great comfort will be experienced, to be succeeded by refreshing sleep. If there be a tendency to gout or rheumatism these hot-air baths will be of immense service.

So much, then, for the art of drinking as a preservative of health. Let us now consider for a little how this may be taken advantage of as a restorative to health. As a rule we will find that a great proportion of ill-health has its origin in some disorder of the digestive organs, and ample experience has taught me that dyspepsia is not only one of the commonest complaints

that comes under the notice of the physician, but also is the origin of a host of secondary maladies, a great number of these being due to the presence of uric acid in the blood. Errors in diet and the over-indulgence in stimulants have much to answer for in these circumstances. It is not, however, my intention to deal with dietetics at present, but as uric acid poisoning is invariably due to the ignoring of nature's demands in this respect, and as gout and rheumatism are the direct results, it would be hardly fair if I did not call attention to the fact.

Let me, then, point out in what manner the art of drinking may prove of service in certain disturbances of the stomach, especially that condition which is designated catarrh. When this is present we know the mucous membrane is in a state of subacute congestion. The invariable result of this is a deficient secretion of gastric juice and an excessive secretion of mucus. The consequence is that when food enters the

stomach it does not digest as rapidly as it should do. Now, when this is the case fermentation is certain to follow, resulting in the generation of acid and gas. The former will make its presence known by acid eructations and the latter by distension of the organ. Now, when this gas, or flatulence, as it is termed, distends the stomach the distress produced does not terminate there, but extends to the heart and lungs, whose movements are frequently considerably impeded, giving rise to palpitation and breathlessness. It is then imperative that the diet be modified, and relief will be afforded by sipping a tumblerful of hot—very hot—water about half an hour before each meal.

It would hardly be within the scope of this article to enter in detail upon a description of the various watering-places that are the resort of invalids suffering from various complaints. It will, however, be found, that at every one of these, the physician consulted will give quite as much

attention to the diet of the patient as to the water he is to drink. But drinking of the waters is a most important part of the treatment, and this is all directed to the flushing of the various excretory organs.

That the art of drinking in these circumstances is most valuable will, I think, appeal to every one, but when we come to realise that the necessity of visiting such resorts might have been obviated had we cultivated it as a preventive measure, we are bound to admit the paramount importance of acquiring as great skill in utilising this art as it is possible to attain.

Permit me to add that while one cannot but admit that the art of drinking, when thoroughly mastered, will prove a valuable factor in dealing with those maladies which are the outcome of a vitiated blood stream—and there are few diseases which are not dependent to a greater or lesser extent to this cause—it must be conceded that the treatment of disease is a much more complicated process than its prevention. It

therefore will be imperative, when disease is an established fact, that the patient immediately places him or herself under the care of a competent medical adviser and on no account to rely upon his own resources.

The next subject that claims our attention is that of food, and I need hardly refer to the fact that there exists a variety of opinion on this subject. None however will, I venture to say, deny that the custom of the day is to eat too much, thus overtaxing the organs of digestion and assimilation to an extent which is highly prejudicial to health. Not only is too much eaten, but a very large majority, unfortunately, indulge in foodstuffs which are contra-indicated by our requirements, and which our digestive organs are unable to utilise as nourishment, the result being that the intestinal canal is constantly overloaded with effete and readily decomposable material. In consequence of this, the lower bowel never ceases to be the breeding-place of innumerable noxious,

offensive, and dangerous micro-organisms. By their means highly toxic materials are constantly being generated, and are, without intermission, as continually being absorbed into and polluting the blood stream.

I never look into one of our ordinary restaurants without commiserating the deluded frequenters of these establishments, who are loading their stomachs with luscious, unnecessary, and unwholesome mixtures, thereby committing, from my point of view, slow but certain suicide. This may appear strong language, but nevertheless it is too true.

How does an engineer act if he aims at preserving the efficiency of his engine, and obtaining the best results from it? Does he not first of all make it his business to make himself intimately acquainted with its construction? Why, then, is there so much indifference displayed, by almost every one, to the various component parts of the most important of all machines—that of the human body? so that one

may anticipate, with certainty, realising the very best results. What would one think of an engineer who failed to keep every part of his engine perfectly clean, and attend to his lubricators, with a view of avoiding wear and tear to the fullest extent? Then, with a view of extracting as much power as possible, he prefers to supply his boilers with the purest water, and thus avoid fouling the parts which provide the energy. Again he employs the best fuel, knowing that it will consume freely, and leave the smallest amount of waste material or ash. He knows full well that if his bunkers are filled with rubbish in place of good coal the power of the engine will be diminished *pro rata*, and the work of the stokers unavoidably increased. And what would an observer think if he saw the furnace choked up with *débris*? Is it to be thought for a moment, that if this is not thoroughly raked out, and the furnace constantly kept free from this useless

stuff, that the fire will burn freely, and thus be enabled to convey sufficient energy to the water in the boilers? Certainly not. And just as the starting-point of the power which drives an engine is the fuel, so is wholesome food essential to the maintenance of health and life in man. He requires complete combustion just as much as any other machine does, and it is equally important that our various organs are supplied with an uncontaminated blood supply as that the boilers of an engine are supplied with pure water and the best of fuel. Moreover, it is indispensable that, as in the case of the engine, the utmost cleanliness both of our persons, clothes, and environment be observed.

A great display of ignorance on the food question has of late flooded the daily press. Men, who have made it quite apparent by their remarks, that they have no practical knowledge of the subject, have posed as authorities on dietetics,

and whose advice cannot but have had a most pernicious influence.

I wonder if these would-be advisers have ever given even a passing glance to the construction of the human teeth, or compared them with those of other animals whose habits are well known, and which habits are never, of the animal's own accord, departed from. Or have they ever devoted any attention to the digestive apparatus of the human being; or has habit supplanted their intelligence, and their palate obtained so complete a mastery over them and they have become so enslaved to it that their common sense has thereby been blighted? Such certainly would seem to be the case, and, as a consequence, millions of our fellow-creatures are at the present day suffering from diseases which otherwise would have been non-existent. Surely such a state of affairs should prove sufficient to rouse one out of one's lethargy and indifference, and direct

attention to a subject of the most vital interest.

The construction of our teeth clearly indicates the use they were originally ordained to be put to. They were never intended to crush bones and tear up flesh as the carnivora do, but are, what Solomon has designated them, "grinders," and if we would employ them as such upon the food provided for man and other animals whose teeth resemble ours, and give them plenty of work to do, there would soon cease to be so much necessity for the dentist, and I am afraid the doctor would also suffer. Ease is the condition natural to every member of the animal kingdom, not *dis*-ease, and, as I have observed before, disease, as a rule, is Nature's reprimand for disobedience to her commands.

The arrangement and formation of the teeth and jaws of man clearly points out the kind of food the Creator intended for our nourishment. Carnivorous animals never masticate their food. Moreover,

they could not do so if they wished, so they bolt it in lumps, and leave the stomach to do its best with it. We must bear in mind, however, that raw meat, with its vital principle still existing within it, its albumen, nuclein, and natural salts uninjured by heat, is a very much more easily digested article than when it is transformed by cooking into rank, dead matter. I wonder how a lion or other carnivora would get along with a certain Knight's sirloin, or mutton chops in the condition he advocates they should be eaten by his fellow-men? I have no hesitation in predicting they would be dead in six weeks. Now man's teeth, as well as those of all other herbivorous and frugivorous animals, are constructed first of all to cut the food, hence the incisor teeth are provided for the purpose; after which the molars, or grinders, come into play in mastication, during the process of which the food is mixed thoroughly with saliva, and converted into a semi-fluid

condition, at the same time transforming its starchy constituents into glucose.

The course Nature intended to be followed by animals of every description is pursued by every member of the animal kingdom except man, who certainly ought to know better. He doubtless imagines he is improving upon Nature by destroying the vital principle of his food by heat, thus rendering it not only more difficult of digestion, less nutritious, and therefore making it necessary to partake of a much greater bulk to obtain the amount of nourishment necessary to keep his body and soul together. Does he forget that at the same time he is overtaxing his digestive organs to an undue extent? Moreover, that in the process he also succeeds in loading the intestine with an undue amount of effete and highly decomposable material, which undergoes a dangerous putrefactive change in the large intestine, giving rise to innumerable enterotoxins, liable to be absorbed by the blood-

vessels, and thus positively fosters disease. Are we not conscious of the innocence of the odour of the excrement of all herbivorous animals, compared with that of their fellow-creature, man? Moreover, do we not perceive that the food they subsist upon, and the freedom from disease they enjoy, together with the immense size in many instances they attain, and the strength and endurance they develop, that their natural food is ample for all their needs? It is only when for their natural food an unsuitable artificial diet is substituted, and their environment altered, that they become victims of disease. What would be the result, think you, if cattle were fed upon boiled grass, in which every element of life had been destroyed? Why, even children who are fed upon sterilised milk are thereby rendered prone to scurvy, rickets, and anæmia. No; if health and longevity are to be promoted we must obey implicitly the dictates of Providence, which has quite sufficiently

cooked our food by the sun's rays, rather than undo what Nature has accomplished by her own perfect methods. The vital principle of all vegetable matter and its nutritive value, as well as its digestibility, is seriously impaired when it is exposed to a temperature of 140° Fahr. It stands to reason then, that if we desire to obtain the best results of our food, it should never be subjected to a higher temperature than this. An exception, however, may possibly be made in those vegetables which are chiefly made up of farinaceous material, such as potatoes and cereals, but even these would be found, not only to be more nutritious and more digestible were their vital properties left intact. Why, the most important constituents of vegetables are thrown down the sink, and only the mush left for the table, when the prevalent method of treating them is adopted. Every soluble portion, including the important salts they contain and which are

essential to nourishment, is removed by cooking.

It is no wonder, therefore, that unthinking people place such a light value upon vegetable food. Another fallacy consists in the impression that flesh food contains more nourishment in a concentrated form than vegetables or fruit or cheese, eggs, and milk. To prove the absurdity of this let me ask you to refer to the table on p. 62, leaving out of consideration the greater difficulties the stomach is compelled to contend against when cooked flesh meat is substituted for uncooked vegetables, fruit, nuts, milk, eggs, and cheese.

A glance at this table will make it evident to any one of ordinary intelligence that butcher meat, after all, is not richer in protein than many substances derived from the vegetable kingdom, and in this respect is considerably inferior to cheese, and what is of vital importance, it is, when cooked, much more difficult of digestion than the other foodstuffs

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FOODSTUFFS.	Water.	Protein.	Fat.	Carbo- hydrates.	Salts.	Fuel Value, per lb.
	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Per Cent.	Calories.
Loin of beef..	70·8	24·6	3·7	—	1·3	615
Almonds	4·8	21·0	54·9	17·3	2·0	3,030
Walnuts	2·5	18·4	64·4	13·0	1·7	3,300
✓ Cheese	31·6	28·8	35·9	0·3	3·4	2,055
✓ Eggs	73·7	13·4	10·5	—	1·0	720
✓ Milk	87	3·3	4·0	5·0	0·7	325
Cabbage	91·5	1·6	0·3	3·3	1·0	145
✓ Potatoes	78·3	2·2	0·1	18·4	1·0	385
✓ Onions	87·6	1·6	0·3	9·9	0·6	225
✓ Artichokes ..	79·5	2·6	0·2	16·7	1·0	365
Figs, dried ..	18·8	4·3	0·3	74·2	2·4	1,475
Apples, dried	28·1	1·6	2·2	66·1	2·0	1,350
Apples, fresh	84·6	0·4	0·5	14·2	0·3	290
Grapes	77·4	1·3	1·6	19·2	0·5	450

A calorie is the amount of heat necessary to raise 1 kilo-gramme of water 1 degree Cent.

enumerated in the table. Moreover, it is deficient in those agents which are essential to the maintenance of animal heat,

upon which we know life is quite as dependent as upon proteids. Furthermore, as I have pointed out, the effete matter derived from flesh food undergoes a much more offensive, and therefore more dangerous, putrefactive change in the intestines than that which is the residue of vegetables or fruits.

I have omitted to include in this table peas, beans, lentils, and other varieties of pulse, which contain not only a large percentage of every substance that the various tissues of the body depend upon for nourishment, but in such beautifully conceived proportions that they are capable of being adapted to every circumstance in which man may happen to be situated, either as regards climate, occupation, or condition of life.

Dr. Haig has condemned a great number of these articles containing a considerable amount of protein, because he holds they also contain uric acid. Now I am not aware that any vege-

table or fruit contains any such substance as uric acid, though pulse certainly abounds with chemical elements from which uric acid and many other undesirable substances may be evolved under certain conditions. And there can be no doubt that were there no difference in the food value of products derived from cooked and uncooked vegetables, Dr. Haig would be quite justified in discountenancing the use of vegetables containing a large amount of proteids in cases where there is a tendency for uric acid to accumulate in excess within the blood. There is, however, a mighty difference between cooked and uncooked articles of this description. In the former they have been transformed from living into rank, dead matter, abounding in nitrogenous material, capable of undergoing rapid fermentation both outside and inside the body, and therefore readily convertible into uric acid, and, as a matter of fact, the conditions in such circum-

stances are highly favourable to this chemical change taking place. The reason for this is not difficult to decipher, when we come to know that the vital principle of the article has been destroyed by the heat employed, while the important chemical elements have either been washed away or transformed into useless—insoluble, and therefore profitless—compounds.

As I have before stated, cooked vegetables are much more difficult to digest than those which Nature had previously brought to perfection. Their nutritive properties have also been sadly interfered with. Therefore fermentation of these is liable to commence in the stomach; for whenever digestion does not proceed, fermentation invariably takes its place. Then there always remains a greater proportion of waste material. This being rejected by the stomach, thereafter finds its way into the lower bowel, there to undergo further pute-

fractive changes. This gives rise to noxious fluids and gases, which will be absorbed into the blood.

Now, when these circumstances prevail they will prove favourable to uric acid making its appearance. This is to be accounted for by the material undergoing a chemical change, due to fermentation being set up by the presence in the blood of a microscopic fungus, named *Saccharomyces*, one of the products of which change is uric acid. This micro-organism is invariably present in the blood in rheumatic, gouty, and cancerous subjects. It is, however, highly sensitive to, and readily destroyed by, the salicylates, and would seem also to be unable to exist when the blood is invigorated, by the presence within it of the vital principle of uncooked vegetables and fruit, and this notwithstanding the fact that they contain a large proportion of protein. I therefore venture to predict that if, instead of discarding those highly nourish-

ing articles, we would partake of them in the condition Nature has provided them for us we would speedily be freed from the presence of uric acid in our blood, together with the evil effects it produces upon every tissue of the body, especially those of the joints and nervous apparatus, where it gives rise to pain in both instances.

Nuclein is secreted by every cell of the animal body, and is essential to the maintenance of its health. Not only is this the case with regard to the cellular tissues, but it performs a most important office in providing nourishment and stimulus to the white corpuscles of the blood and to the nervous system, and, with the view of supplementing the quantity of nuclein, an extra amount is supplied by certain glands, such as the thyroid, liver, spleen, &c. If, however, the physiological activity of these glands is adversely influenced by their receiving a vitiated blood supply it will not be difficult to perceive

that every cell and tissue of the body will in consequence suffer, and the general health thereby be deteriorated.

Now the blood stream can only be maintained in a pure condition in the presence of an unpolluted air, water, and food supply, and the continuance of a perfect sanitary condition of the large intestine. It is therefore of primary importance that these conditions be fulfilled to the letter. It is our duty, then, to guard against any infringement of sanitary laws, and adopt a diet which nature has allotted to us for our maintenance in health, the chief of which is derived from the vegetable kingdom. That such products are essential to our well-being is apparent on every hand, but, as I have before insisted upon, their nutritive value must not be destroyed by their being subjected to a temperature of over 140° Fahr., above which heat their nourishing properties are to a very large extent reduced, as well as their digestibility seriously inter-

ferred with. As we have seen, the value of food is measured by the amount of nutriment it is able to afford, and the rapidity by which it can be disposed of by the digestive apparatus, but in uncooked vegetables, fruit, eggs, and cheese, there is also present an appreciable amount of nuclein, which I am convinced is the vital principle of plants as well as animals. When this is taken into the stomach, and thence finds its way into the blood, it becomes a valuable adjunct to the nuclein secreted by the various organs referred to. Cooking, however, destroys this, as well as detracts from the other vitalising component parts of the articles under consideration. Their intrinsic merits, therefore, are to a large extent destroyed, and, *pro rata*, their value diminished.

When we take into account that the nutritive value of peas, beans, lentils, nuts, cheese, and many other articles are much richer in protein than butcher meat, and, moreover, abound in other valuable

properties which are either absent, or contained to a very limited extent in flesh meat, have we, knowing the beneficial effects of the former and the evil consequences of the latter, any justifiable reason for preferring a carnivorous to a rational diet? From my point of view it is, to put it mildly, a reckless disregard of common sense.

It is quite unnecessary for me to refer to the Divine ordinance on the subject, though this ought to be sufficient for our guidance. It has, however, I am sorry to say, been characteristic of man since his creation, notwithstanding his many advantages, to disregard in no small measure the dictates of his Creator. Had he, however, only obeyed that one mandate, which indicated the nature of the food he was intended to rely upon as his daily portion, I am quite convinced that there would be less crime, less immorality, less drunkenness, less insanity, and no disease to speak of, and most certainly cancer would never have been heard of.

Moreover, it would be a move in the right direction were lunatics debarred altogether from the use of butcher meat, when we would speedily see a considerable amelioration in their condition.

Such treatment would appear to have been adopted in ancient times, and to have proved eminently successful, as exemplified in the case of King Nebuchadnezzar, whose mind becoming deranged was quite restored by means of a vegetable diet.

I am quite convinced that a simple, natural diet, while it affords all the nourishment the human frame is able to assimilate with the best results, in every instance promotes a higher moral tone in those who rely upon it than would be the case were a flesh diet indulged in. Moreover, if a rational dietary be substituted for the unwholesome indulgence in the flesh of animals, the vice of drunkenness, and crime of every description, would cease to debase society to anything like the extent which at present prevails. I ask, then,

are these advantages, not to mention the great benefits that would be conferred upon the health of the body, not sufficient to induce every one to fall in with Nature's decrees?

Were it necessary to quote Scripture in support of my views, no difficulty would present itself, and it needs no assurance from me to substantiate the fact that no harm has ever been visited upon man by implicit obedience to its mandates. If the Creator had intended that man should not obey the physiological laws He ordained, with the view of enabling man to enjoy to the full the life He had conferred upon him, as an animal, with the mental faculties superadded, He would not have indicated the food upon which the health and sustenance of the most wonderful product of His creative power was intended to subsist. It is all very well to refer to many passages in the Bible which relate instances of the depravity in man, the which induced him to depart

from God's commands. We must bear in mind that the Bible is a strictly truthful narrative, and that the Almighty, when He lays down a law, leaves the matter afterwards to man's intelligence. We would never for a moment conclude that because the worship of idols is frequently referred to in the Scriptures, that we are entitled to adopt idolatry. Our domestic animals—all of which obey their Creator's injunctions as to diet, and who therefore are superior to us in that respect—were given to us, not to be mercilessly murdered, so that their flesh might be utilised to give indulgence to our depraved appetites, and poison our blood, but to be useful servants.

When God created man in His own image, and implanted His spirit within him, He told him distinctly what his food was to consist of, and then left him to his own free will; and now we see the consequence of disobedience, in disease, crime, and early death.

Deprive an animal of its natural food, and substitute something which is foreign to its physiological necessities, and will it retain its health, think you? Certainly not. And even though you do not confine it to a diet absolutely at variance with its natural pabulum, but permit it to have a certain proportion of what Nature intended to supply its bodily necessities, we will find that the health of the creature and its longevity will suffer *pro rata*. And this applies to man as well as to animals, though man has the advantage, in that experience has taught him the use of remedies which have the effect of giving relief to the symptoms of ill-health which he has voluntarily brought upon himself, but, which, through the wonderful recuperative power of Nature, together with the abstinence which has been enforced by the rebellion of the digestive organs—induced by indiscretion—will possibly result in the re-establishing of health. Mark me, however, every

violation of hygienic law, though apparently pardoned after a slight penalty has been exacted, will assuredly leave indelibly behind its impress upon the vitality of the culprit.

Who, I would like to ask, are the most robust and healthy people we know of? Are they the civilised nations, or rather, the large proportion of them, these being meat eaters? Most assuredly not. Indeed, if we glance at the history of disease we will find that it was almost unknown amongst the aborigines of various countries until they were brought in contact with civilised man, which has almost decimated these children of Nature. Is it not lamentable that the mode of life of our forefathers and their contempt for those laws, which were enacted to enable them to keep their bodies in a perfect condition, should have been followed by such disastrous results, all of which might have been obviated? Yet the lesson, which ought to have been sufficient to

teach wisdom, though repeated daily for ages past, has been systematically ignored, with the dire result that what is termed civilisation has proved to be a hotbed of disease and degeneracy. The most vigorous, hardy, healthy, and longest-lived people on the earth are those who have implicitly observed Nature's decrees as to diet, and it is only when their contact with their more enlightened (*sic*) fellow-men have induced them to adopt degenerate habits that their healthy standard has suffered, and that, as a rule, most disastrously.

Butcher meat has no advantage in maintaining health; indeed the very converse is the case, notwithstanding what its advocates say in its favour. It certainly has the effect of exciting the passions and demoralising the consumer, but that its consumption, as it has been averred, imparts valour, endurance, or brain power is not in accordance with fact. That it has the effect of improving

the beauty of woman or the valour of man is another fallacy. On the contrary, it brings on old age prematurely, thus causing the freshness and beauty of youth to pale before its time and valour to vanish in decay. Why, the bravest, most energetic, and plucky of nations are those who live a simple life. Take the Sikhs of India or the Japanese for examples; then look at those meat eaters, the Laplanders, the Esquimaux, and the natives of Terra-del-Fuego, and ask yourselves if you would like to depend upon them as soldiers or teachers, or can you admire them as specimens of humanity?

To come nearer home, we will find that we have ample opportunity of demonstrating the superiority of a rational diet over that of one largely composed of the flesh and internal organs of animals. In every instance where a comparison has been made, where physical endurance was being estimated, it has been placed beyond doubt that the meat eater has failed and

the vegetarian succeeded. Let me quote from a letter written by a medical man, who gives his experience as follows:—

“I was very strong and athletic as a young man, and a ‘glutton for work.’ I ate everything that came along and drank moderately everything offered me—provided it was good. So strong and well was I that I rowed and ran long races at thirty-eight, after severe training. A few years afterwards I began to lose energy—to put on fat and to get constant neuralgias, catarrhs, sciaticas, spots of eczema, and which finally culminated in an acute attack of gout in both big toes at forty-seven.

“I immediately gave up meat, fish, fowl, tea, coffee, cocoa, peas, lentils, oatmeal, and eggs; in fact, any food containing xanthines,* and I have never had a touch

* Had he, however, taken his peas and lentils and eggs under-cooked or uncooked, he would have found these to be quite innocent and wholesome also. “Xanthines” which are referred to may mean anything of a yellow colour, but here evidently the term

of gout or rheumatism since, never a neuralgia or spot of eczema; my energy began to return about three years after I had been on this diet, and now I am full of go and can last on the golf links better than many a younger man, especially in hot weather. I live chiefly on bread, cheese, macaroni, vegetables, and fruit, and drink a brandy-and-soda, when I want to, which is generally in the evening, once or twice a week.

“These are the facts. Now, can any one tell me if tuberculosis is prevalent amongst the Japanese, who eat small quantities of fish; the Sikhs, who are non-meat eaters; and the Italian peasants, who are non-meat eaters? The energy and intelligence of these peoples are too well known to discuss.”

And his experience is that of many.

It has been argued that long persist-
is meant to apply to all vegetables containing an abundance of flesh-forming material, and therefore contain, only *when cooked*, however, ingredients from which uric acid is derivable.

ence in incorrect and unnatural habits will result in the body accommodating itself to these. This, however, is a great mistake. The prevalence of disease and early deaths prove this absolutely.

Mr. Gilman Low, of New York, limits his bill of fare to vegetable and fruits in their elementary condition—and he does not vary his diet a great deal—yet he was able, in the presence of several witnesses, to lift one million pounds in thirty-four minutes, lifting one thousand pounds at a time. Here we have the experience which constitutes an authority. Now I ask, Can any one who is a flesh eater quote an authority of equal value? Every successful athlete will answer, No.

So far as I can judge, the majority of mankind display a greater amount of anxiety to gratify the palate than to satisfy hunger. The result is that wholesome and readily digested natural food is ignored, and its place taken by so-called luxuries, which are, with few exceptions,

*a million pounds in 34 minutes
 1/3 ton a minute*

made up of ingredients which may truthfully be described as masked poisons.

What I would designate as the purpose of food is to furnish material calculated to supply the necessary vital energy to the various tissues of the animal economy, and renewing these as they are worn out by physiological processes. Ingested material, which does not fulfil these requirements, does not come under this category, and if, therefore, it is consumed, it must necessarily be excreted at the expense of vital energy, and, therefore, only succeeds in unduly harassing the digestive and eliminating organs, thus producing a prejudicial effect upon the health. In the case of animals we do not find them eating anything that comes in their way, as man does. They, without hesitation and with decision, reject that which instinct teaches them is unsuitable, and only will accept that which is suitable to their requirements. Man, on the other hand, would seem to receive into his

stomach any kind of conglomeration of articles, however unsuitable they may prove to be, if only they can be made to appear pleasant to the eye and savoury to the palate. What chemist, I wonder, would care to stake his reputation upon an attempt to define the component ingredients of a Lord Mayor's banquet, or what guest would consent to partake of it if he was cognisant of the various manipulations the concoctions had undergone prior to the seductive appearance they have assumed when they emerge from the cook's laboratory? Now, Nature does not require to condescend to any such tactics in providing for our daily wants. The habitual indulgence, however, in extraneous material has perverted our taste for natural food, and therefore we are liable to revolt against it at first, but rest assured this revulsion will soon disappear, to be replaced in consequence of the appetite, and the palate also, demanding that which Nature has so amply

provided for our use, and to the exclusion of all that a vitiated taste has hitherto induced us to substitute for Nature's provisions.

When this desirable state of matters has become established, and the proper dietary has been adopted, so that the actual wants of the body are provided for, and the vital energy of the various organs developed to the full, a new lease of life will, with its adoption, appear to have been inaugurated. The decrepit martyr to gout and rheumatism—a martyrdom of his own creation, however—will throw his crutches to one side, and rejoice again in the legitimate use of his limbs. The emaciated and ill-natured dyspeptic will shout for joy, in the consciousness that his stomach is no longer a source of pain and disturbance to him, but that, on the contrary, it has been transformed into a source of comfort and pleasure, while his nervous depression and irritability of temper will have subsided beneath the

tide of good health, which has now commenced, and will continue to flow, overwhelming in its flood the various maladies which have hitherto menaced his health and life. It is unfortunately the tendency of the age to give heed to men holding a prominent position in Society, notwithstanding the fact that they have not the slightest practical acquaintance with the subject they may be dealing with. In this way frequently the public are led astray and reform retarded. We have at least two notable instances of this of recent date. One of these has advocated a diet which experience daily teaches is a pregnant source of disease and early death, while the other has made every effort to boom an alleged cure for cancer, which, *per se*, has proved a complete failure, and thus has been the means of shaking the confidence of the public in measures which, based upon rational principles, have proved eminently successful.

The digestive organs of man, from the

teeth downwards, clearly indicate the nature of the kind of nourishment that the human body is intended to rely upon, if health and longevity are to be its portion, and assistance given to enable man to retain his morality and mental faculties in the best condition possible. We are told that "the wages of sin is death," and I have no hesitation in declaring that gluttony is one of the prime incentives to sin. What is the use of our praying "Lead us not into temptation," when we voluntarily, every time we disobey the Divine injunction as to diet, encourage the tendency to lapse into evil ways. This may appear to be rather severe censure to mete out, but unfortunately we are surrounded by ample proof of the truth of my words.

The evidence at hand, and experience, go to prove that disease is promoted, and death accelerated by persistent disobedience of dietetic laws. Permit me to draw attention to the following statement by

one who speaks from personal experience ; and I could quote innumerable similar instances.

“As a meat eater I had poor health and finally a serious nervous break-down. For nearly five years I have lived almost entirely on cereals, fruits, and nuts. I can do twice as much, mentally and physically, as I used to do ; and, moreover, I now know, as only one who has experienced it can know, that the physical change from the stimulating to the non-stimulating diet may lead the way to a far more important mental and moral change, altering the whole outlook on life.

“I ask the public to believe that those who intelligently advocate diet reform are leading them upwards to a better and a happier state, and that those who would lead them along the old paths are leading them downward to the abyss of misery and wretchedness.”

Having discussed pretty fully the importance of a natural diet in relation to

health, I now, in conclusion, desire to draw attention to the importance of obedience to those hygienic and sanitary injunctions with which we are more or less familiar, but which I fear we are sometimes prone to treat with an amount of indifference which is not to be commended. In the early eighties, as I have already stated in my prefatory notes, I published a paper in the *Lancet*, in which I pointed out the serious effects which were liable to be coincident with constipation, and many other diseases, which, if not all due to its existence, were at least more liable to occur when it was present than when the bowels were in a healthy state of activity.

Two years afterwards the late Sir Andrew Clark followed in the same journal with a paper confirming my views in every particular.

It is all very well to say one's bowels are in good working order, because there is a daily evacuation. The question is, was the

evacuation *complete*, and was it not unduly delayed? That is, had it not been retained in the colon for an undue length of time, and thus permitted absorption of putrid material into the blood? If so, this will be evidenced by the stool being hard, and more difficult to pass, and therefore there is justifiable suspicion that mischief is being hatched. Now butcher meat has not only the effect of giving rise to most pernicious and offensive material, charged as it is with ingredients liable to undergo noxious decomposition, but it also tends, to no small extent, to induce constipation, with, in the circumstances, far-reaching injurious effects upon the blood stream, thereby encouraging the advent of disease. A vegetable and fruit diet, on the other hand, promotes a healthy action of the colon, and, when supplied in their natural condition, convey ample nourishment, without the accompaniment of any prejudicial effect upon the blood. Moreover, many vegetables, such as peas, beans, lentils, and

the like, not to mention nuts and almonds, contain quite as much flesh-forming material as butcher meat, and they have the advantage of being more easily digested and assimilated when thoroughly emulsified in the mouth.

Every necessity of the human body is supplied by a combination of plants and fruits, in which nuts are included. Sufficient testimony is borne to the truth of this in the strength and agility displayed by the anthropoids, whose teeth and organs of digestion are identical with ours. The gorilla, for example, subsists entirely on these simple foods, and so great is its strength that it can with the greatest ease twist a rifle-barrel into a shapeless mass, and there is no evidence that, in its natural state, it ever suffers from disease. Indeed, argue as we will, we cannot get rid of the fact that disease, with perhaps the exception of malaria and similar parasitic diseases, is the outcome of what we are pleased to term civilisation.

The primary object a man aims at is to find a supply of food and water, knowing full well that he is unable to do without either. His duty, then, is to select what his Creator, from the beginning, intended for his use. Moreover, this can be produced in abundance, and it is not necessary that it should primarily pass through the stomach of an animal, and then be consumed with all the products of decomposition which it must necessarily be charged with, consequent upon the physiological changes that have been proceeding in the victim prior to its death. No wonder that, with food that is not adapted to the maintenance of health, man falls an easy prey to disease.

Nature produces no food either for man or other herbivorous animal that does not require mastication, and this is essential for two reasons, the first being that it be thoroughly pulverised and mixed with the saliva, which acts as a digestive agent upon the starchy material present in the

food; and, secondly, that the further result will be attained which will permit the albuminous portion to be the more readily acted upon by the digestive juices of the stomach. Mastication, therefore, is essential to easy digestion, for otherwise the stomach will be overtaxed, and sooner or later suffer in its functional activity, when the food will tend to ferment instead of digest. This will be accompanied by the generation of foul gases and acidity, both of which will operate injuriously not only upon the stomach itself, but, by absorption into the blood, will act prejudicially upon every cell and tissue of the body, while that which ought to have been converted into nourishment—had the conditions been normal—becomes effete matter. This, upon reaching the colon, will be liable to undergo still further putrefactive changes, followed by more serious consequences than those due to the primary fermentation. I need hardly add that if con-

stipation is coexistent, the evil will be very much accentuated. This, however, is only one of the many evils that are bound to supervene upon imperfect mastication, even when the food is wholesome. How much more important, therefore, will the sequelæ prove, if the ingested substances be largely made up of material foreign to the stomach's ability to deal with in a satisfactory manner. It is quite contrary to Nature's decree that one organ should do the work of two; on the other hand, she will not tolerate with impunity neglect of any organ in doing its legitimate duty. If we do not use our teeth on the food she has provided for us, she will cease to keep them free from decay and retain them fixed in their sockets. If, instead of adopting Nature's diet, we endeavour to subsist upon matter from which all the nourishment has been removed by maceration, the vital principle, destroyed by heat, and rendered soft and pultaceous

in the process of cooking to excess, we will cease to put our teeth to the use they were intended for, and in consequence they will tend to decay or fall out. This fact, from my point of view, is a most cogent argument in favour of a rational diet. Nature has provided no food that does not require mastication, and she has provided the mill by which it can be ground and thus prepared for its complete digestion. Moreover, she has not thought it necessary to encourage one to eat more than is good for one by exciting unduly the palate through the olfactory nerves. Hunger, and easily satisfied hunger, has been the only inducement she offers to make us eat, while a healthy digestion and bodily comfort, with buoyant vitality, are the results.

There would be no dyspepsia were we to use our teeth energetically upon the food which has been provided by a beneficent Providence for our use, and if there were no dyspepsia there would be no

gout, rheumatism, neuralgia, or any of the thousand-and-one ills man has brought upon himself by preferring to cater for his palate rather than provide simply for his necessities.

I am quite aware that many otherwise sensible people will be inclined to exclaim, Life would not be worth living were we compelled to subsist upon such a diet! Their motto, they will probably try to make themselves believe, is "a short life and a merry one." Where, I wonder, is the merriment in pandering to disease, and being subject to it as a consequence of folly? Does it not appeal to every sensible person, that life would prove much merrier were disease not such a constant handicap upon it? Surely, as Solomon says, "Better is a dinner of herbs, where love is, than a stalled ox and hatred therewith." And, let me add, there would be more love, and less hatred, were not all that is evil in our natures so prone to be excited by the

errors of diet so many indulge in, and by the maladies induced by these, destroying the equilibrium of the nervous apparatus, thus permitting passion, instead of reason, to dominate their lives.

Had Nature intended us to cook our food—one of man's many inventions—she would not have brought the fruits of the earth to the state of perfection she has done, but would have provided the implements by which this should be accomplished. Can we suppose for a moment that animals who eat their food in its elementary condition, do not enjoy it as much as so many of us do who cultivate a taste for so-called delicacies, which habit—and a pernicious habit—is solely responsible for.

Moreover, thorough mastication will develop unknown flavours in natural food which will surprise those who have hitherto ignored Nature's diet, and this pleasant result is the outcome of the changes that are developed by the action of the saliva

upon the chemical ingredients contained therein, being the first stage of the process of digestion. For example, starch is, by the action of the saliva, changed into dextrine and glucose, which, combined with the flavouring essences contained, develop a delicious taste, and similar pleasant results are obtained during the masticating of nuts and almonds. Indeed, no matter what food one indulges in, the full flavour is only developed by thorough mastication, and the simpler the diet the less danger there will be of overloading, and thus incapacitating, the stomach, which will in every instance lead to disease. Moreover, there will be less danger of overtaxing the excretory organs, thus lessening—if not altogether removing—the tendency to skin, lung, kidney disease and constipation, with their attendant evil consequences. Man has been endowed with perfect liberty of action, and at the same time Nature has provided him with ample means to enable

him to enjoy perfect health, yet, where his physical happiness is concerned, he would seem to go contrary to her dictates in almost every particular, and to employ that liberty to defeat her intentions. This is a serious charge to make, yet, unfortunately, it is impossible to view the actual facts in any other light, for does not man detract, to a culpable extent, from the pleasure of eating—and a pleasure it always should be—by overloading his stomach with one hand, while with the other he endeavours to counteract the evil consequences, which experience has taught him are certain to follow, by taking nauseous drugs. Hence the enormous sale of quack nostrums, which are, as a rule, composed of more or less irritant poisons, and which though, in consequence of Nature's effort to get rid of them, also purge away redundant material, but they are certain to leave their indelible injurious effects behind.

The outcome of it all is, that at the

age of forty the majority of mankind begins to go downhill, instead of being in its prime—a period that should continue for other forty years at least—the various organs show symptoms of decay, the cellular tissue rebels against the ill-usage it has been subjected to by the fictitious nourishment supplied to it, and in consequence adopts a new form of life, cancer being the result. The blood-vessels undergo fatty or calcareous degeneration, until they become so friable that they are unable to withstand the blood pressure, and eventually rupture, the consequence being apoplexy, with its accompanying paralysis, followed by premature death. I might cite numberless other evil effects due to the persistent disobedience to those laws which have been enacted for our guidance ; but this is unnecessary, as these are palpable to all who are not blind to their own best interests, and who are willing to exercise a little common sense.

Now, “it is never too late to mend,”

and many a man has been saved from being a physical wreck, even after forty years of age, if he has consented to alter his mode of life. I need hardly quote that well-known example, Luigi Cornaro, a Venetian nobleman and a man of great learning. He was, at the age of forty, such a martyr to disease that it was predicted by the most renowned medical men he consulted that he would never see the age of fifty. Having received such an unfavourable prognosis he determined to think for himself, and came to the conclusion that his sufferings were entirely due to over-eating. He therefore, to put his theory to a practical test, commenced a reform by restricting his dietary to 12 oz. of food per diem. As years passed by he reduced his daily rations still further, the result being that he continued in perfect health, and enjoyed his new lease of life to the full. Some of his best literary work was executed between the ages of 86 and 95, and he lived till he was 103 years of age.

The result of living upon food, the vital principle of which has not been destroyed by cooking, is that there is no inducement to eat more than is necessary for our sustenance, and the organs of digestion, never being overtaxed, become normal in their activity, and make full use of the material to be converted into energy, and the maintenance of health. These foods require thorough mastication, which is one of Nature's safeguards against over-indulgence. It will be found that a much less quantity of uncooked food, thoroughly masticated, will have a much more invigorating effect than double or even treble the quantity of the same material were it cooked, with the additional advantage that the effete matter will neither be so offensive or abundant, while indigestion and constipation, with the many ills they are responsible for, will come to a speedy end.

It is not likely that at first the palate and appetite, which hitherto have been

pampered by savoury cooking, will at once take kindly to uncooked foods, even if one is willing to adopt the reformed diet, and it may therefore be prudent, in the circumstances, to allow a certain portion, for a time, of that which habit has induced one to hanker after. But let the staple diet consist of a preponderance of articles containing all their vital elements unimpaired, and the reformer will soon get to prefer these, when a new world of comfort and enjoyment of life will open up to him.

I hardly need to add that it is incumbent upon us to use our intelligence in the selection and mixture of our food, so that we do not confine our diet to a class of articles which are of similar nutritive value; that is to say, our menu should be varied. It is our duty to make use of farinaceous substances to keep up the caloric, mingled with those containing albumen or protein, together with the phosphates, and other salts, which go to nourish and repair the muscles, bones,

and nervous system, so that we do not confine ourselves to any one thing. It is also our duty, therefore, to acquaint ourselves with the special nutritive value of the various substances that are provided for our nourishment. We would thus be enabled to choose, intelligently, the dietary most suited to our requirements, when gradually abnormal appetite would give place to healthy hunger.

When this has been established, and the appetite has fallen into line with the physical needs, one will not feel inclined to lead a sedentary life, but will be impelled to take active exercise, and thus encourage the functional activity of the various organs of the body. Deep breathing will thereby be induced, thus encouraging the elimination of waste material from the blood, and at the same time promoting a more active circulation in these organs, thus still further aiding in the process of excretion by bringing more oxygen in contact with the blood. Nor-

mally induced activity would therefore do away with the necessity of undergoing courses of physical culture, which are thought to be so necessary in this enlightened age. Following these precepts would not only prove to be the best insurance policy we could take out against disease, but also light up the path to perfect health.

A great amount of excellent advice has been offered to the public by various writers on the question of Food Reform. Some of this, however, can hardly be quite acceptable, and, from my point of view, would seem to have damaged the cause the writers have at heart by their extremist dogmas. For example—and I take the liberty of quoting from an American writer whose views, on the whole, I believe to be in every way quite in accordance with truth, yet in the following extract from his book his statements, from my point of view, are quite at variance with accepted facts. He

asserts that bread—which, as we know, is our staple article of food—because of the fact that, in the process of making, fermentation has one of “the most deleterious processes known in the culinary art introduced into it.”

Then he goes on to state—and rightly, I maintain—that the evils which follow the cooking or superheating of all other articles of food are due to the cooking, and that these evils consist principally in lessening their food value. Then, he adds, bread is not only subjected to the devitalising process of baking, but is infected with a germ that converts a large amount of the nutritive value of the grain into carbon dioxide poison. After this he goes on to make a statement which is absurd on the face of it, which is, that “fermentation is Nature’s process of disintegration—that is, the changing of matter back into its original elements,” and he applies this to the conversion, by means of yeast, of a certain amount of starch in

the dough into dextrine—which, as is well known, the saliva would accomplish, at any rate—and the liberation of a certain amount of carbon dioxide, which raises the bread, and which he looks upon as a poison, while it only acts as such when it is inhaled in quantity of 2 per cent. and over, in the air breathed, but can be taken into the stomach with impunity. Moreover, the process of fermentation is immediately checked by the heat of the oven, and the gases generated at the same time are driven off.

He then proceeds as follows: “People seem not to be content with subjecting their foods to a powerful heat, and robbing them of their original elements—devitalising them, changing their life-giving carbon into carbonic acid gas—changing the starch into dextrine, &c.” (whereas this only proceeds to a hardly appreciable extent). “But to make sure they are thoroughly unfit for use, introduce yeast germs into dough and allow

it to stand overnight in a nice, warm, comfortable place, so as to be certain the few germs will multiply themselves into millions and billions more."

Then, the still more unscientific statement is made that—"Bread rises when infected with the yeast germ, because millions of these little *worms*"—which are not worms in any sense whatever—"have been born and have died, and, from their dead and decaying bodies, there arises a gas just as it does from the dead body of a hog, or any other animal." Can any one conceive of such a distortion of truth being acceptable to any one of ordinary intelligence?

One other quotation will suffice to point out what extraordinary and incorrect statements a man will condescend to make in support of a fallacy, which is as follows: "The process of fermenting bread"—which in itself is a misnomer—"is exactly the same as that which is carried on in the vat for making beer, or

through which the grain passes in making whiskey, and through which fruit passes in making brandies and wines. It creates in the human organism the same set of conditions that is created in the production of nearly all intoxicating beverages; therefore what seems the natural appetite for intoxicants is a false cry of perverted nature, first created and set in motion by what we are pleased to call the staff of life—fermented bread.” Now, let me ask, if even there were a small amount of alcohol produced during the process of leavening the dough, where would it be when baking is completed? The writer seems to have overlooked the fact that alcohol is a highly volatile fluid, and would be driven off immediately the dough became heated, and long before the bread was baked. That theory, therefore, of the inducements to lead to drunkenness can hardly be entertained.

There can be no doubt, however, that the same writer is correct when he states

that—"No man or woman who will live for six months on pure, clean, elementary foods, can possibly keep alive an appetite for stimulants and narcotics. From this rule there is absolutely no variance. There can be no room in the human body, a body made of Nature's unchanged foods, for such foreign elements as tobacco and rum."

My experience is that one of the best aids in the cure of drunkenness is complete abstinence from a flesh diet, and those who are interested in the subject of temperance would do well to take this fact into serious consideration.

The Drink Question is one of such vast and far-searching importance, pregnant as it is with misery, sickness, and death, that no apology need be offered in bringing it prominently before my readers. Slavery to alcohol is not only debasing and humiliating to the victim, but degrading to his humanity. Moreover, its evil effects are not, unfortunately, concentrated upon

the drunkard, but are felt, and that most keenly, not only by his poor wife and children, but by his entire environment. As we know to our cost and sorrow, there is no one vice which contributes so much to immorality, crime, disease, degeneracy, insanity, and an early grave as that national curse, strong drink.

Unfortunately legislation has proved utterly helpless in combating the evil, nor do I believe temporary or even prolonged restraint will ever prove of permanent value; dipsomania is a species of insanity, and must be dealt with as such. Fortunately it is rarely of an incurable form, though to treat it successfully measures must be adopted which aim at restoring the tone and vigour of the semi-paralysed nervous apparatus, the enfeebled condition of which may in the first instance—as is frequently the case—have been due to nervous shock, the effects of a previous illness, some internal derangement, such as dyspepsia, and its concomitants or depres-

sion of spirits due to grief or worry. But the continued loss of will-power, the invariable predisposing cause of alcoholism, is in the majority of instances directly consequent upon the pernicious habit of having recourse to stimulants with the view of temporarily bracing up flagging nervous energy. No sooner does the desired effect induced by stimulants pass off, than the debilitated nerve cells, deprived of the fictitious energy, fall back into a worse condition than that which previously obtained.

In process of time the nerve cells become completely demoralised and would appear to be rendered incapable of abstracting from their normal food supply that wholesome stimulus which would enable them to perform their functions in a healthy manner. This is due to the paralysing effect which alcohol, circulating in the blood, produces upon cellular tissue, both directly by its poisonous nature and indirectly by its destructive effect upon

the white corpuscles and upon the nuclein. The former, we know, act as purifiers of the blood by virtue of their destructive effect upon toxic material constantly gaining access to the vital fluid, and the latter contributes to a great extent to the source of supply from which these white corpuscles and the nervous system derive their nourishment.

The consequence is that the whole nervous apparatus is rendered incapable of maintaining a healthy standard, and, therefore, every function of the body, all of which are dependent upon nerve energy for the performance of their various duties, suffer materially. The brain becomes muddled, the sensory nerves morbidly affected, giving rise to nervous headaches, the digestive organs are prostrated, the result being dyspepsia, causing biliousness, nausea, and so on. The general effect is one of abject misery from which the wretched victim seems only capable of gaining relief by having recourse to

the very agent which produced the evil, and thus the enslaving habit is established, and unless some rational measures be resorted to to arrest it, a crisis must speedily supervene.

Before considering the various methods that have been suggested for the treatment of dipsomania, it will be well to dwell for a little upon certain incidents which may lead up to the contraction of this malady, for such it is. It is possible that if these were brought prominently forward and demonstrated to be factors to a large extent in spreading the evil, an enormous amount of misery might be averted. As we know prevention is always better than cure, and very much easier of achievement, it behoves every well-wisher of his race to point out and endeavour to suppress any factor that may tend to render one susceptible to the influence of this enemy to sanity both of mind and body. I need hardly refer to the painful fact that dipsomania is more or less of a hereditary

affection. Greater care, then, should be devoted to the rearing of children of those where the taint exists, and principles of total abstinence, during childhood, at all events, be carefully inculcated. Unfortunately it is not infrequently the case that infants and young children are dosed with alcohol unknown to their parents, as the following extract from the *New York Medical Record* will amply demonstrate:—

“THE DANGERS OF ELIXIRS.

“Simple elixir, so called, has been adopted as a common vehicle in prescription intended for children, yet it is probable that but few physicians realise that this elixir contains a considerable proportion of alcohol which under other circumstances they would hesitate to administer. It remains for a pharmacist to call attention to this fact, and to show that the ordinary doses of the preparation may be productive of considerable harm in those of tender years. Mr. E. F. Heffner, in a paper read at the twenty-ninth annual meeting of the Pennsylvania Pharmaceutical Association, cited a number of common prescriptions in which this might occur. Thus sodium bromide is very often administered in the proportion of one grain to the teaspoonful of simple elixir, every hour or half-hour, which means that the child, often less

than a year old, is getting about a quarter of a teaspoonful of alcohol at every dose, or the equivalent of two teaspoonfuls of wine, or over half a teaspoonful of whiskey or brandy. In older children correspondingly larger doses are given, which are not only harmful in themselves, but also counteract the sedative effects of the bromide. Another common prescription contains chloral and bromides in simple elixir, which makes a bright, clear, and palatable solution. But the fact is overlooked that, there is a chemical incompatibility of chloral and alkaline bromides in alcoholic solution, for, on standing, the chloral alcoholate will come to the top in a clear layer of about the same colour as the rest of the mixture. Unless the bottle be shaken, the patient is likely to get all the chloral in one dose. These examples need no comment, for the dangerous effect of alcohol in children is of common knowledge, but, as Heffner truly states, it is well that the prescribing mind be occasionally refreshed in cases of this kind. In order to avoid any possible danger he advises the use of an aromatic water and simple syrup as a vehicle in prescriptions of this nature."—*Medical Record*.

Then it is a painful fact that women of the poorer classes are permitted to frequent drinking saloons carrying their infants with them. But unfortunately the evil does not end there, for it is well known

that the mothers are in the habit of dosing the little ones with drink, the consequence of which is inevitable. Where an early death is not the result, the sequel is a stunted growth both of body and mind, with a proneness to acquire the pernicious habit.

Patients, too, are frequently prescribed alcoholic stimulants in cases of illness, and do not discontinue these when necessity has ceased to call for their employment, if this ever existed. In any case they ought to be discontinued like any other prescription when health has been re-established. Unfortunately this does not always follow, and I have known several instances where hopeless dipsomania has supervened.

As we are well aware, a great many people who take alcoholic beverages are able to, and do, indulge in alcohol regularly without doing so to excess, and as has been stated by eminent medical authorities, with benefit. One of these states :

“Beer and wine whip up the strength given by real food. Every man is not a perfectly healthy man: there may be a few men or women who can do all that they have to do without tasting a drop of beer or wine or spirit, but they are very very rare.” Another asserts that “the liquor of grains is one of the most important causes of the stamina of the English people—that is to say, the Beer of Old England. To my mind, it is not the alcohol in the beer, but it is the salts which are obtained from barley wherein lie the merits of the beverage.”

There is one point, however, which I think every one ought to be acquainted with, and that is, the first symptom which indicates that alcohol has been taken to excess—though this excess may be to a very limited degree—is indicated by a flushing of the face. This is due to the fact that in these circumstances the vasomotor nerves, which control the calibre of the arteries, have ceased to act in conse-

quence of the temporary paralysis induced by the toxic effect of the poison imbibed. The result is, the blood-vessels expand to their full extent and flushing is the symptom indicating this. The converse is the case when pallor results from shock, this being due to these nerves being overstimulated, causing an undue contraction of these vessels.

To obtain the benefit of such beverages, then, one should always draw the line when Nature holds up her hand in this unmistakable manner. It is only by acting upon this principle that alcohol can ever prove advantageous. There is another rule that should invariably be followed, which is, that when one has once so far forgot himself as to go beyond rational indulgence in stimulants and become intoxicated, to take his stand there and then and become a total abstainer; otherwise he will never be safe. Permit me to refer to one circumstance I have observed in a long experience, and which I have

noted with considerable interest. This is, that when a person is fond of sweetmeats there does not appear to be the tendency either to indulge in alcohol or smoking to excess. Indeed, I may go further and suggest that substituting sugar will frequently prove most helpful to any one anxious to overcome the drink habit. I knew of one remarkable instance where this succeeded admirably. This was the case of a most intellectual man who subsequently became a Member of Parliament. He was terribly addicted to drink, and made every endeavour to overcome the evil habit, but without success until it was suggested to him to carry always with him a quantity of sweetmeats, and when the craving came on to put one in his mouth. This plan he carried out systematically, with the result that he completely succeeded in overcoming his failing. This circumstance strikes one as remarkable, seeing the close chemical relationship sugar bears to alcohol.

Dipsomaniacs may be divided into two classes: 1. Those who periodically succumb to temptation and continue the debauch for days and sometimes weeks together, which may only terminate with an attack of *delirium tremens*. This is followed by a period of abstinence accompanied by remorse which unfortunately is rarely long-lived.

2. Those persistent dram-drinkers, who, though perpetually tipping, rarely get dead drunk and yet are constantly exhaling the fumes of alcohol. They are generally sufficiently sober to enable them to find their way about, and are rarely in such a condition that renders them incapable from a legal point of view. Their mental and moral condition, however, rapidly suffers, and though their downfall may be gradual yet it is certain. Their character rapidly deteriorates, which is followed by wreckage of their physical stamina—sooner or later the heart, liver, and kidneys suffer seriously in their

functional activity, and as a natural consequence organic disease supervenes. Eventually the debilitated body succumbs to this—surely a sorry ending to what otherwise might have proved to be a long and useful life. Yet the fact is, and this is worthy of comment, that the habitual tippler, whose mental condition is never normal, and who is the cause of untold misery to all connected with him, is judged with less severity than the man whose bouts of drunkenness, though possibly more pronounced at the time, are comparatively few and far between. Now the very reverse should be the case, as the latter is more deserving of pity, care, and compassion. Moreover, he will be found to be more amenable to treatment than the habitual fuddler. The one is the victim of impulse, while the other deliberately yields up body and soul to the pernicious influence of alcohol.

I need hardly refer to the various circumstances which tend to drive a man to

drink, such as unhappiness at home, due either to the incapacity, carelessness, or temper of his wife, or his own lack of interest in her and her oftentimes great responsibilities to which he may also prove callous and unsympathetic. The tendency in these circumstances is to frequent the public-house or his club, preferring these to his own fireside, with the inevitable result.

Nor until the victim of the drink habit can be brought to realise the danger which besets him, and his moral sense be roused so as to give rise to the desire to free himself from the bonds of the slavery he is the victim of, can any cure be expected. On the other hand, if there arises a sincere desire on his part, he is entitled to look forward with confidence to ultimate and complete recovery of his will-power.

THE PERFECTION OF MANHOOD

CHAPTER II

THE PERFECTION OF MANHOOD

LET us now consider for a moment what I would term the perfection of manhood. The fundamental principle upon which the ancient Greeks based their education consisted in devoting special attention to those measures which promote the development of the body simultaneously with that of the mind. They recognised the fact that a healthy and vigorous mind is incompatible with an unhealthy body. Body and mind must of necessity work in harmony if the best results are to be obtained. The higher the standard of our physical strength, the more lofty will be our attainments, not only because of the greater

animal force it yields, but because of the additional nervous energy it imparts, and thus renders us more fit not only for physical but mental work. We can rely upon it as a reservoir of power, which may be applied in either direction, but this can never be exerted at its utmost limit in both. If we are engaged in arduous bodily work, experience teaches us that simultaneous mental work is out of the question, and, on the other hand, we are aware prolonged mental work invariably produces physical exhaustion. Thus, an overtaxed brain acts most seriously upon the growth of a child, who is thereby rendered less fit for the struggle of life than his schoolmate whose inclinations have been more towards play.

Physical strength, as we know, can be attained by systematic gymnastic exercise, but this should not be aimed at, at the expense of some other faculty, for a man may be possessed of great strength of limb and yet may not be strictly speaking a

healthy man, and it is a well-known fact that those who make it a business of displaying feats of strength are invariably short-lived. On the other hand, we must bear in mind that over-mental fatigue will wreck the frame of the most robust. This was sadly exemplified in the case of Herbert Spencer, who, at the age of thirty, became a physical wreck, and who pathetically wrote: "Chronic bodily disorder casts a gloom over the highest prospects; while the vivacity of strong health gilds even misfortune." A man must remember his limitations, and act up to this knowledge if he aims at doing the best and greatest amount of useful work. It may be remarked that a vast amount of work of the highest class has been accomplished by those who were practically invalids. These, however, in the majority of instances have been rendered such by ignoring these limitations I speak of.

The human body is a highly complicated piece of mechanism, composed of a

variety of organs which bear a close relationship to each other, and which in a condition of health act as a harmonious whole. These various parts are dependent for their healthy activity upon that wonderful storage battery—the brain—for the force which actuates them, and each is only entitled to its fair share of nervous energy, so that if one organ is compelled to work at higher speed than the normal the other parts of the mechanism are bound to suffer, and the quality of the work performed by these will necessarily be reduced. The harmony being thus disturbed, the inevitable result will be that the whole bodily organism must feel the evil effects.

To gain the full benefits of education, it is necessary to associate the training of the mind with that of the body, and by this we mean the development of the powers therein should be aimed at, and kept in such a state of harmony that they will advance at an equal rate with the

most refined mental and moral attainments. Harmony must of necessity continue throughout, for an over-stimulated brain reflects itself upon an impaired digestion or stunted body, or both. On the other hand, an over-developed muscular frame will as surely affect deleteriously the mental development. The aim of muscular training should always be directed towards improving the functional activity and development of the nervous system, and mutual reciprocity will then prove of service to both mind and body.

Every beat of the heart, every breath we draw, and every movement we make is preceded by a discharge of nervous energy, and it is essential that the force discharged should just be sufficient and in the right direction to obtain the most satisfactory and economic results. Gymnastic exercise, if scientifically conducted, will do much to enable a child to attain this result by enabling him to be accurate, easy, and

graceful in his movements. But from my point of view, the happiest method for a boy or girl to acquire these benefits is in an outdoor life, where they can enjoy exercise and sports in a pure atmosphere and abundance of sunlight. The determination to overcome difficulties is fostered by seeing others succeed in feats which at first seemed impossible, and thus a confidence is engendered which acts as a wholesome incentive in after-life.

Of course the first teachers of physical hygiene should be the parents; and this does not only apply to the training of the muscles, but to the adapting of the food to the requirements of these, and also studying the diet which will promote the development of mental activity. Many a child who appears to be dull and stupid would show a very different front were more attention devoted to his food supply. Pampering of children is one of the curses of the age. The physical as well as the intellectual development of

the child, then, lies with the parents. Doubtless this necessitates a considerable amount of knowledge, but is there any reason why this knowledge should not be acquired? An eminent authority puts the subject into a nutshell when he says: "A child is usually thought well fed if he does not starve; well clothed if he does not freeze."

It must be borne in mind that it is only during growth that training of the physical and mental capabilities can prove of the most intrinsic value, as when maturity has been arrived at, though mental vigour afterwards does increase and will continue to do so when cultivated, the same can hardly be said with regard to the muscular system.

The quality and quantity of the air we breathe, the light that surrounds us and which we absorb, suitable clothing, our food and drink, all exert an influence upon us just as their environment affects animals and plants, and I am afraid these

have frequently received more careful study than is sometimes devoted to the rearing of healthy, strong, shapely, and well-balanced children. Parents, however, are now beginning to plan more carefully for their children's future. They are being taught both by their own experience and that of others the intimate relationship between mind and body. We are beginning to realise the ancient Greek conception of the musical harmony of the whole. We have to recognise the truth of Herbert Spencer's words, that "the mind is not as deep as brain only, but in a sense as deep as the viscera." This, then, should be the foundation on which to build the beautiful edifice of a well-developed body, illuminated by a highly cultivated mind, but this will never be attained by over-burdening boys and girls with tasks which exhaust both mind and body to the extent which I fear is too prevalent in this age of strife after wealth and distinction. The result in a minority

of instances which parents and teachers have aimed at may be attained, but only, I fear, at the expense of an enfeebled constitution.

In conclusion, permit me once more to quote Herbert Spencer, who spoke from sad experience when he said, "What folly it is, while finishing the engine, so to damage the boiler, that it will not generate steam." And—"What is the worth of distinction, if it has brought hypochondria with it?" *

* A most able paper in the *Dietetic and Hygienic Gazette*, New York, by Dr. J. F. Rogers, New Haven, Conn., has proved of immense service to me in compiling this chapter.—R. B.

CLEANLINESS

CHAPTER III

CLEANLINESS

It has been stated that cleanliness is next to godliness, and if a clean mind is coincident with a clean body, there can be no doubt on the subject. On the other hand filth, no matter what it consists of, be it mental or bodily, cannot possibly be compatible with a desirable standard of morality, nor is a man, who does not keep his body clean, however lofty his professions of religion may be, to be trusted.

The skin is by far the most extensive excreting surface of any organ of the body, and, to enable it to do its duty efficiently it must be kept scrupulously

clean, its innumerable glands kept in perfect working order and the healthy condition of the cuticle be maintained, if we aim at its maximum of functional activity being attained. Cleanliness will help very much in this direction, and it is gratifying to note that municipal authorities, both in this and other countries, are providing bathing facilities to further this hygienic necessity, by providing baths for public use, so that there can be no excuse for any one who fails to take advantage of them.

As we know, the ancients paid special attention to bathing, and in many instances this formed a part of their religion. One of the Mosaic doctrines was purification by water; and now the symbol of admittance into the Christian Church is baptism, typifying the cleansing from sin, and so admission into the fold of Christ.

Public baths existed in ancient days in almost all Eastern countries. In Japan at the present time, and for centuries past, daily ablutions have occupied a

prominent place in their daily life. In Tokio alone there are more than 800 public baths. From 800,000 to 1,000,000 use these baths daily, and the population of the city is not quite 2,000,000. Bathing establishments existed centuries ago in Egypt, Persia, Assyria, India, and in Rome at the present day we have ample evidence how numerous and commodious they were in the Imperial City. The Hebrew ritual insisted upon cleansing the body by water, not only before all ceremonies and festivities, but before every meal, and in the time of Ptolemy baths were provided on an ample scale for the use of the populace. Indeed, Alexandria is said to have been unrivalled for its system of public bathing institutions.

Besides cleanliness being favourable both to health physically and morally, the exercise of swimming has also a most beneficial effect upon bodily health and vigour, and therefore swimming ponds ought always to be a feature in bathing establishments. Of

all physical exercises this has been proved to be most beneficial. Experiments have proved that it has the most valuable effect of increasing the number of red corpuscles in the blood, whereas indulgence in violent exercise such as football, polo, racing, &c., is liable to prove injurious to the heart and the organs of secretion. Bathing may be indulged in in various ways, such as simple sponging, the spray, plunge, shower baths, &c., but we must not overlook the Russian bath (moist heat) and the Turkish bath (dry heat).

In people who are delicate or plethoric, the sponge bath only should be had recourse to, and then only when this can be followed by a hard rub down with a warm, rough towel.

Cold baths are beneficial when they are followed by a good reaction, but I am strongly of opinion that they should not be indulged in by persons over forty years of age. After this period the bath should be tepid or even warmer. For my

part, I take a hot bath every morning, which after a brisk rub down is most invigorating, and if one remains immersed for a couple of minutes or so it is never followed by a feeling of chilliness, but the reverse.

Children should be educated to the use of the daily bath as soon as they are able to take advantage of it themselves. Prior to that it should be the care of the parents to administer it. If once the habit is acquired it will rarely be departed from.

The use of the Russian or Turkish bath should always be subject to medical advice if there be any doubt about the condition of the heart or blood-vessels.

AN INTERESTING QUESTION

CHAPTER IV

AN INTERESTING QUESTION

It would be interesting to ascertain if the following question has not often suggested itself, not only to the man in the street but to the medical man in his daily routine, the clergyman in his ministerial work, the business man, and the man of independent means, not to speak of those of the weaker sex upon whose devotion both in health and sickness we rely so much, and upon whose love and care we are ever dependent, viz., How does it happen that one or more members of a family are prone to disease while the remainder continue in the possession of a healthy constitution?

Again, what are the influences at work which, during the prevalence of epidemics, and when the environment and other conditions seem identical, permit some to escape whilst others are prostrated by the disease prevailing at the time? How does it happen, too, that, out of several passengers coming off a long railway journey, where they have been pent up for hours in a vitiated and disease-laden atmosphere, only one or two, perhaps, upon their arrival at home will be laid up with pneumonia or some other acute disease, while the others have escaped? In short, to what are we to attribute the susceptibility to disease on the one hand and immunity on the other, all things being equal, or rather apparently equal? The elucidation of such a problem cannot fail to be of interest to every one. I will endeavour to shed some light, at all events, upon the subject.

We must first assume, and we have every ground for doing so, that the body,

with its functions in full vital vigour, is impervious to disease. That such is the case is demonstrated every day of our lives. And that we are not at all times impervious to disease is, in the majority of instances, our own fault or the fault of others, more frequently than we are inclined to admit. The human frame was never intended to be a receptacle of disease or to be transformed into a soil for the implanting of disease germs, and the propagation of their species. If it had been there would not be a soul on the earth at the present moment. Are we not enveloped by microbes, bacilli, and bacteria? Yet we do not all fall prone before them, nor is there really any necessity that any one should do so. If *one* is able to escape from "the pestilence that walketh in darkness," there is no reason why all should not be able to defy it. You may depend upon it, when anybody is prostrated by disease, it is not because ample provision has not been

made to guard against such a contingency, but because the means provided have been either wilfully or in ignorance neglected or ignored.

Laws have been enacted for our guidance, and, though we are constantly being reminded of their existence, how few take the trouble to study and obey them. It would appear to be of much more importance to educate our children in every department of science except in that of hygiene, and so they grow up without any knowledge of that which should concern them most and occupy the first place in their education. To a certain extent, a false modesty is accountable for such a state of matters, but this can afford no excuse for perpetuating the ignorance, which at present prevails, of the laws which, when obeyed, contribute to the preservation of health and a happy and long life.

The rule would appear to be to court disease instead of endeavouring to avoid

it. The sensual enjoyment of the moment, though it is usually followed by much more than an equivalent of misery, would seem to be preferable to a constantly happy frame of mind, which is invariably the lot of the abstemious and those who conform to the laws Nature has laid down for our guidance.

Let us glance at a few of what may be designated the more common ailments to which our mode of life renders us susceptible.

Will any person, who knows what he is talking about, maintain that tuberculosis would be as prevalent as it unfortunately is were those fallacious notions regarding the dangers arising from a superabundance of fresh air circulating in the bedroom and nursery non-existent? Did exposure to the influence of a constantly changing atmosphere ever act injuriously even upon a new-born infant or any other person? Certainly not. But, keep an infant in a vitiated atmosphere, whereby

its vitality is depressed, and its lungs filled with impurities derived from this, and then, in its enfeebled condition, permit a draught to play upon the little one; what is the result? The little creature's blood, not being properly oxygenated, is rendered incapable of further resistance, and so the increased prostration, consequent upon a chill being super-added to that due to the impure air with which the small frame is already saturated, in every way fulfils the conditions which enable the germs of disease to give tangible proof of their presence and activity.

It is sheer nonsense to suppose newborn babes are unable to tolerate a free circulation of air, provided they be well clad, and, from my point of view, they are, as a rule, encased in far too much clothing. But to keep them coddled up in a badly ventilated room, in my opinion, is criminal. Let them have plenty of fresh air from their birth, suitable cloth-

ing, and a rational diet, and we will soon perceive that tuberculosis as well as other maladies will speedily drop out of the list of diseases. Of course, we must always bear in mind the danger that arises from contagion conveyed by diseased animals, but there would be no such thing as tuberculosis in cattle were the animals permitted to live a natural life, and not overcrowded in badly ventilated byres. There is no evidence whatever to show that, in the wild state, animals are affected by this disease.

The prevention of disease is much more desirable than cure. While diet exercises a powerful influence in attaining this object, yet, without an abundance of fresh air, which is always available, dietetics will prove of little service. Moreover, the neglect of any other hygienic law must also be condemned, especially that which relates to the sanitary condition of the intestinal canal. Let us turn our attention, for a moment, to a fever which at

one time carried off its victims by the thousand: I refer to typhus, now extinct in localities where at one time, and that not so very long ago, it was rampant. To what is due this gratifying state of things? It is not because the germs of this fatal disease are not still present in our midst, but because they have been deprived of their opportunity by putting an end to overcrowding and badly ventilated dwellings. In other words, a pure atmosphere has been substituted for one that was vitiated. A similarly happy result might likewise be attained with regard to tuberculosis.

No doubt, the proclivity to tuberculosis may be inherited to a large extent, but that it is hereditary I am inclined to dispute. When a disease is hereditary, we usually have evidence of this at the time of birth; yet a tubercular mother frequently gives birth to a child which has all the appearance of robust health, and my observation has led me to believe

that the child being brought up in a badly ventilated dwelling, the atmosphere of which is laden with the emanations of the parent, has a great deal more to do with the so-called heredity than we are inclined to admit. My view is that the disease is contracted, not inherited.

How slight is the prospect of any child escaping infection when it is sleeping, eating, and living from day to day in such an environment!

Again, how are we to account for the fact that consumption comparatively rarely attacks a subject while the vital functions are in full sway, and cell proliferation in full activity, as is the case in the development and growth of the individual? It would appear that it is only when this cell activity has been modified by maturity being established that the tendency to the disease manifests itself. Yet it does not, as a rule, attack every member of the family. Some may and do escape, and

the proportion is greater now than it was some years ago. Now, there must be a reason for this, just as there is a reason for the immunity from other diseases which obtains in what we imagine to be similar circumstances.

Let us first acknowledge the fact, and fact it is, that the lungs require as their vivifying agent an abundance of pure air, as opposed to a vitiated air, just as much as the stomach requires a supply of wholesome nourishment or a steam engine regular stoking with good fuel. A failure to supply these in quantity or quality will inevitably result in loss of energy. Now pure air can be had for the taking of it, and wholesome food is much easier to obtain than that which, in ignorance, people would seem to long for and deem essential to their well-being. Custom has led us seriously astray in the matter of diet, but what is to be expected when it is founded on ignorance?

What would we think of a commander

who would decline to use every possible effort to thwart the enemy's design to enter his fortress, but would rest quietly until the foe was within the gate, and then, but not till then, feel compelled to bestir himself, when the probability of success would be seriously reduced? Would he not be much more worthy of his command if, on the contrary, he had searched for and strengthened every weak point?

Now this applies equally to the fortress of the human body. The prevention of disease is much more easily accomplished than its cure, and if parents would take the trouble to master and obey the fundamental rules of hygiene, they would not only save themselves a great amount of anxiety and sorrow, but no inconsiderable expense as well.

As a rule every child is born into the world with an unblemished constitution, and there is no reason whatever that this condition should not continue, if those in

charge of it would be guided by reason instead of being led astray by fallacies which are in reality more hereditary than disease is.

WHAT IS A COLD?

CHAPTER V

WHAT IS A COLD?

Is it because Nature is so lavish in her gifts and the blessings she loads us with so numerous that, as a rule, so little thought is directed to the consideration of the many—nay, the innumerable—benefits she freely confers? Do we, for example, ever pause, even for a moment, to contemplate the wonderful provision she has made, and is ever making, to fortify our bodies against the entrance of disease? Do we ever give thought to the trustworthy and efficient sentinels she has stationed within our bodies, not only to warn us of danger, but to subdue the enemy when, perchance, he may have

succeeded in asserting his presence? Again, are we not prone to overlook the fact, even when disease has established a footing, that Nature speedily comes to the rescue, and rarely fails to re-establish the equilibrium, temporarily upset? To take an example of this beneficent power of Nature, let us consider that departure from the healthy standard somewhat flippantly designated a "common cold."

Perhaps there is no ailment of more frequent occurrence, and probably none treated with so much indifference, and this notwithstanding the fact that the most evil consequences not only may, but frequently *do*, supervene. How many really understand the train of circumstances tending to provoke an attack?

The popular theory is that a "cold" is due solely to the effect of cold playing for a longer or shorter period upon a portion of the body exposed to a draught. It is to this cause that a cold is generally attributed. This, however, is any-

thing but a satisfactory explanation, as I shall amply demonstrate.

There must needs be other factors involved, besides the mere exposure to a draught of cold air, before the catarrhal condition of the nasal muco-membrane, which is the prominent symptom of a "cold in the head," can be established. No doubt if we are so placed that a cold draught continues to play for a time upon any portion of the body, the exposed surface will become chilled, and the chilling process may extend far beyond the area actually exposed. The primary effect of this depletion of caloric is to depress the vitality of the individual for the time being, and this is the only direct effect a draught of pure cold air will produce. The secondary effects will be indirect—shivering and sneezing—accompanied in all probability by hypersecretion of mucus by the nasal muco-membrane. These are termed reflex results, the first two constituting Nature's method of over-

coming the disturbance of the circulation which exposure to cold has caused.

The effects of the chill have been conveyed by means of the cutaneous nerves of the exposed surface to those nervous centres from which the sympathetic nerves emanate, and upon which they are dependent for their functional energy. Now, it is these sympathetic nerves which control the calibre of the blood-vessels, and thus regulate the supply of blood to the various tissues of the body. If, then, these nervous centres have had conveyed to them the depressing effects of the cold upon the cutaneous nerves, the effect will be to reflect this depression upon the sympathetic—or, as they are termed, the vaso-motor—nerves, which have their origin in these centres or ganglia. Their controlling influence over the arteries normally under their domination will, therefore, cease for the time being; the blood-vessels will expand under the blood pressure, and an undue amount of blood

will be temporarily pumped into the highly vascular muco-membrane. The natural sequence is congestion of the part, during the continuance of which there will be observed an excessive secretion of mucus, giving rise to what is popularly termed a cold or catarrh in the head. So soon, however, as the effects of the cold draught have passed off and the nerves have recovered from their temporary disablement, the normal circulation in the muco-membrane becomes re-established, and this will be the end of that cold in the head.

It must be borne in mind that whenever the secretion of any membrane becomes excessive in quantity, its quality is *pro rata* bound to suffer. It loses its healthy character, and its usefulness is thereby impaired. In consequence of this impairment in the character of the secretion the affected membrane is rendered vulnerable to evil influences that may be hovering around; and herein lies the crux

of the whole question. This will be apparent when we are made acquainted with certain properties the secretion of the muco-membrane of the air passages possesses.

It is hardly necessary to explain, what every one is conscious of, that the muco-membranes are dependent upon their secretion of mucus to enable them to retain their healthy character and perform their normal functions. The secretion answers the double purpose of keeping the muco-membrane moist and comfortable, and also of protecting its delicate surface from being irritated by gaseous or solid matter suspended in the atmosphere, which may find an entrance into the air passages in the process of breathing. It possesses the faculty of arresting impurities suspended in the inspired air, thus purifying it before it reaches the lungs. This property can readily be demonstrated during the prevalence of fog.

If the foreign matter is irritating in its nature, sneezing or coughing will be excited, and at the same time mucus will be secreted more freely, and will continue in excess until the foreign matter is expelled, after which the muco-membrane will tend to resume its normal condition.

When the mucus is normal in quantity and character it differs very materially in one of its most important features from the secretion when in excess. A perfectly normal secretion contains an active and potent constituent named mucin, a most powerful antiseptic. It is to the presence of mucin that we suffer so little from the myriads of germs ever present in our environment. They gain admittance to the air passages, but they are immediately arrested by the secretion and altogether destroyed by the mucin. Afterwards they, as well as other extraneous matter, are ejected by the mucus which has entangled them, and is constantly being discharged outwards, the current

propelled in that direction by the sweeping movements of the innumerable minute hairs, or cilia, with which the air passages are provided.

It would appear, however, that when the secretion is increased in quantity, as it always is when there is a cold in the head, its character is so altered that the antiseptic property of the mucus disappears, or rather ceases to be produced. Now is the opportunity for the germ, which, when ventilation is deficient, is always at hand ready to take any advantage of the vulnerable condition of the usually impervious armour. Once a footing has been gained the germ speedily establishes itself and succeeds in maintaining sufficient irritation to perpetuate hypersecretion, which otherwise would speedily have subsided.

It will be readily understood, then, how important a thing—nay, how paramount from a hygienic point of view—is efficient ventilation; disease germs

are invariably present *in an active condition* in a vitiated atmosphere. Sitting in a draught in a *crowded room* is not only liable to give origin to a cold, but also to diseases of more serious import. On the other hand, exposure to a similar draught in an uncontaminated atmosphere would produce no such effect. This is why railway carriages, superheated by the insanitary methods at present in vogue, are so dangerous, and prove such frequent *foci* of disease. This also accounts for the fact that "colds" are so frequently contracted in overheated and badly ventilated places of public resort, where we run the risk of being exposed to a draught, and superadded to this are breathing an impure atmosphere laden with disease germs. Thus simultaneously all the vital energies of the individual are depressed. Disease is thus courted, and every encouragement given to its advances, whereas prolonged exposure to

cold in a pure atmosphere will produce no such disastrous effects, not even if the chill appears to have gripped the very bones!

What we designate a "cold" is only in a very small degree due to the effect of cold; the real cause of ailment is rather to be sought in the presence and activity of microbes. This will be apparent to any one who has been successful in aborting a cold by the employment of suitable antiseptics in the form of sprays or inhalations, these only proving effective owing to their power of destroying the disease-producing organisms.

INFLUENZA

CHAPTER VI

INFLUENZA

A GREAT deal of late has been written on the subject of influenza, its aspects, its prevention, its possible source, and its complications. But from my point of view, little information of real value has been given. Every one is aware that influenza is a malady differing in a multifarious manner from every other zymotic disease. No organ of the body would appear to be invulnerable to its attack, while far-reaching secondary effects of a serious nature are more the rule than the exception, and not infrequently are more important than the actual disease—that is, if the former can be separated from

the latter. Moreover, influenza can hardly be classified either as an epidemic or an endemic, seeing it does not confine its ravages to a locality or to a certain section of people, but rather as a pandemic, since whole countries, even continents, are frequently submerged beneath its devastating tide.

That influenza is a zymotic disease is beyond question, for not only has the bacillus been identified, but its infectious nature has been generally recognised. Yet climatic conditions would seem to exert an important influence upon its appearance and disappearance, so we cannot but infer that our environment is accountable to a certain extent for the prevalence or absence of the malady. My conviction is that there are many factors at work—which act as predisposing causes—more important than the weather, though this when severe and depressing, in consequence of the additional enfeeblement induced, renders us more prone to

an attack than otherwise would have been the case. The question then is, How does *any one* escape?

I have had ample opportunities of observing this disease in its various phases, having frequently had under my care at one time forty to sixty cases in the acute stage, so that I may say that I was really in the very midst of the disease every day for weeks at a time; yet, I am thankful to say, I have so far escaped it. I can point to many similar instances. Now it will, I trust, be conceded there must exist a reason for this immunity.

It is generally admitted that the tendency of influenza is to fix upon any weak part of a person's constitution, and there concentrate its virulent energy. But a person may have weak parts and yet be invulnerable to influenza. We are bound to admit, then, that before influenza will be enabled to attack a weak part it must first of all have obtained a footing

within the body, and it will be my endeavour to point out how this can be obviated. When I was young the term "influenza" conveyed quite a different meaning from what it implies to-day. Then it meant an acute catarrhal attack, affecting the lachrymal, nasal, and bronchial passages, which, if carefully attended to, passed off without leaving any secondary effects whatever. Now, however, a very different construction must be put upon the disease as we recognise it.

"Influenza" has been described as "an acute, specific, infective, febrile affection, characterised by its sudden onset, after an incubation of three or four days"; but the object of this article is not so much to describe influenza as to point out how it may be averted. An eminent authority has suggested the use of quinine as a prophylactic, and brings forward evidence to prove the efficacy of this medicine. Now the very fact that such an agent is useful in the prophylaxis of

influenza, as it also is in malaria, and as quinine thus acts by virtue of its antiseptic properties, would point to the probability, if not to the certainty, that the blood of those who prove immune to this or any other disease, and whose immunity is not dependent upon any therapeutic agent, is provided with a prophylactic property of its own; and such is really the case. In fact, the proneness to disease is entirely due to changes within the blood, which act perniciously upon its vital constituents, and, through its vitiated stream, upon the various organs of the body.

To follow my reasoning, one must bear in mind that the blood contains certain elements whose numerical strength and integrity are essential to the maintenance of the health of the body and to its resisting power against the inroads of disease. If these are in a vigorous and healthy condition, no antiseptic, however potent, can ever prove so efficacious in combating disease and promoting a healthy

condition of the body. I refer, of course, to the leucocytes, or white corpuscles of the blood, upon the vital vigour and energy of which so much depends. These minute bodies, Metchnikoff, who discovered the marvellous powers they possess, named "phagocytes," or "cell-eaters." They have also received the title of "warrior cells," as they are hostile to and attack all disease germs which may find access to the blood. If they are numerous and active enough to attend to their scavenger duties efficiently, we enjoy freedom from disease, otherwise health suffers. One's aim, therefore, should be to promote not only the health but the numerical strength of these minute organisms; immunity from disease depends entirely upon the bactericidal power of the blood, derived from the presence of these leucocytes in great force. Now there is also present in the blood a constituent which is derived from various glandular organs where cell tissue predominates, such as the liver, spleen,

pancreas, and specially the thyroid gland. This is named nuclein, and it exercises a most invigorating effect upon these "warrior cells," increasing not only their vigour but their number also.

In parentheses I may be permitted to present to my readers a few interesting particulars relative to nuclein. It is a substance rich in phosphorus, and is the active chemical principle contained in the nuclei of all cells, whether of animal or vegetable origin. It may be obtained from eggs, cheese, and yeast fungus; it is from the latter that the supply for medicinal purposes is chiefly derived. It is the active agent in the various anti-toxin serums which have proved so useful in the treatment of infectious disease. It is non-poisonous, but its administration should always be carefully watched and be under the supervision of the physician, as undue excitement to cell life may result from too frequent or excessive dosage. It has been employed

with most satisfactory results in the treatment of diphtheria, scarlet fever, measles, tonsilitis, tuberculosis, anæmia, and many other diseases. It must be borne in mind, however, that its utility is sadly impaired when constipation is present.

Nuclein is insoluble in acid fluids, and is, therefore, quite inert while it remains in the stomach; but on reaching the duodenum, or first portion of the intestinal canal, it passes into solution, when it can be readily absorbed by the blood. If it be mixed with dilute acid, phosphoric acid is given off; whereas it readily dissolves in an alkaline fluid.

In my opinion nuclein, as I have said already, not only acts most favourably upon the white corpuscles of the blood as a vitalising agent, but also tends to promote a marked increase in their numerical strength. It is not, therefore, difficult to comprehend how its presence in the blood will not only prove of the greatest service in the prevention of diseases such

as influenza, but also in the treatment of the malady. Moreover, upon its special properties the nervous apparatus is dependent to a large extent for its important functional activity.

When, unfortunately, circumstances arise, as they frequently do, which interfere with the integrity of the blood to such an extent as to completely paralyse the minute warriors, disease germs assert themselves and take possession of the vital fluid, which under other conditions the leucocytes would have been quite able to defend against such an attack. It is then, primarily, to a vitiated state of the blood we must trace the proneness, not only to influenza, but to other diseases as well. Our duty, therefore, is to conform as rigidly as possible to those laws the observance of which is essential if we hope to maintain a healthy condition of the blood.

An impure blood supply acts prejudicially in two ways—first, as I have

pointed out, by its toxic effect upon the "warrior cells"; secondly, by the depressing influence it exerts upon the various organs of the body, so that in every way the tendency to contract disease is increased *pro rata* as the resisting power is diminished. We must never forget that the bacillus of influenza is an inveterate and persistent foe, to frustrate which we should always be on our guard. To carry out this injunction is no hardship, but, on the contrary, will conduce, and that to no small extent, both to the pleasures of life and to a healthy old age. My experience has taught me that influenza has invariably confined its ravages to those whose persistent neglect of dietetic, hygienic, and sanitary laws, either as a whole or in part, had previously produced a vitiated condition of the blood, and that, on the other hand, obedience to these laws is invariably rewarded by continued health.

Firstly, then, accommodate your diet to

your digestive powers, and see that it is composed of substances not liable, when in excess, to undergo noxious fermentation in the intestinal canal, and lead to a consequent development of toxic fluids, which, when attention to the sanitary condition of the large intestine be neglected, are certain to be absorbed into the blood, in process of time transforming it from a healthy and disease-resisting fluid into a veritable receptacle for disease. Attention to this injunction, together with thorough ventilation, will prove to be the most efficient protective measures against influenza we can possibly adopt. A diet consisting largely, if not altogether, of vegetables, fruit, milk, eggs, bread, porridge, and cereals of all descriptions will not only be found to be easy of digestion and assimilation, but will also tend to promote that sanitary condition of the intestines which is so desirable.

Secondly, in addition to what has been recommended, a bath every morning, after

which a good rub down with a rough towel ; clean and sufficient clothing ; complete mastication of the food ; outdoor exercise ; well-ventilated sleeping and sitting-rooms.

Thirdly, a pure water supply ; a perfect drainage system ; avoiding overcrowding, and especially if ventilation be deficient, as, for instance, in railway carriages as at present constructed and heated, and in all public buildings wherein the atmosphere becomes laden with the emanations from the people present.

There is no more potent predisposing cause to an attack of influenza than being pent up for a length of time in an overcrowded and badly ventilated limited space, especially if the insanitary condition of the alimentary canal above mentioned is coexistent. It must never be forgotten that those conditions of the atmosphere which we should shun on account of the pollutions it contains, while they open a pathway to an attack, yield potency and virulence to the invading bacillus.

THE EVOLUTION OF THE
CANCER CELL

CHAPTER VII

THE EVOLUTION OF THE CANCER CELL

IN normal circumstances the newly-born babe is an uncontaminated, plump, well-nourished, healthy individual. Every cell and every organ of the young body are in perfect order, and only require careful attention and guidance to enable them to continue so. The intestines, though laden with fæcal matter, composed of bile and epithelial detritus, as we will perceive, is capable of harbouring and nourishing bacterial organisms, yet at birth is absolutely free from these. Within a few hours of birth, however, as Metchnikoff has pointed out, micro-organisms enter the intestine along with the air,

and also through the anus. In the course of the day, before the infant has taken any kind of nourishment, the contents of the bowel will be found to contain several varieties of micro-organisms of the bacterial order. Metchnikoff has demonstrated that under the influence of the mother's milk these micro-organisms undergo a marked reduction, both in variety and number, until eventually they are practically made up of only one species. Who, then, after this can deny that diet does exert a most potent influence upon the intestinal flora, and therefore upon the health of the individual? That such is the case receives further confirmation from the fact that when an infant is fed upon cow's milk, or other artificial diet, these organisms are not only in greater variety, but are far more numerous than when it is dependent upon the maternal supply. Later on, as the food varies in character, the numbers and variety of the intestinal bac-

teria become still further augmented. It is quite evident, therefore, that the bacilli, dependent for their growth and proliferation upon one kind of food—mother's milk, for example—exert in some mysterious way a bactericidal effect upon other varieties, thus proving the powerful influence which diet exerts upon the presence of toxins within the alimentary canal, and, therefore, upon the health of the individual. Thus, if we select a diet which promotes the growth of an organism of a harmless nature, we may succeed in preventing the development of those other organisms which might prove inimical to health. It is evident that milk exerts a most beneficial effect in this direction, but much more so is this result attained when butter-milk, or milk that has been allowed to become sour, enters into the dietary. You may ask, What has all this to do with the evolution of the cancer cell? I reply, It has not only much, but a great deal to do with it, as I hope to demonstrate later on.

But to return to the new-born babe, which, though taking its origin from a single cell, and that of microscopic dimensions, has now become a composite body, made up, as some one has estimated, of 24,000,000,000 cells. Now this is rather a large army to discipline and see that each unit is maintained in an efficient and healthy condition. Yet it is imperative that each unit of the enormous total be healthy and efficient if the healthy condition of the body available, which has been inaugurated at birth, is to continue.

For the most part our body is made up of fluid material, and it is upon the physiological changes in the varieties of this fluid, which are constantly taking place, that maintenance or deterioration of health depends. It is hardly necessary for me to refer to the fact that by far the most important fluid constituent of the body, from which all the other fluids are derived, is the blood. It is, therefore,

absolutely essential to the health of every individual cell that the blood be uncontaminated by any form of impurity, whether such impurity be derived from food, water, air, or, what is probably as important as any of these, the alimentary canal. A merciful Providence has supplied us with an unlimited supply of both clear water and fresh air, and if we take full advantage of these we shall have gone far towards the preservation of health. Indeed, I have no hesitation in affirming that many diseases would become non-existent were this course studiously followed. Disease germs are only rendered active and prejudicial to health when found in air and water contaminated by impurities, while the blood becomes unable to afford that resisting power to disease, which it primarily possesses, when it is impregnated by toxic matter absorbed from the intestinal canal. The importance of pure air is proved by the various diseases contracted in the vitiated atmo-

sphere so prevalent in badly ventilated enclosed spaces, such as railway carriages, public meeting-places, and more so in our own houses, especially when sewage contamination is coexistent. So far as pure water is concerned, we have only to recall such diseases as typhoid fever, cholera, diphtheria, and many others which directly result from a vitiated water or milk supply. Lastly, we have the various diseased conditions, which, to a large extent, are dependent—in numberless instances—upon the absorption of poisons generated in the intestines, especially when an unsuitable diet has been partaken of and constipation is coexistent. When we consider Metchnikoff's statement that "the bacteria of the human intestine increase at the rate of 128,000,000,000,000 each day, the greater part being found in the large intestine," can we wonder that with such a poison factory within him man's life is prematurely shortened?

Metchnikoff's plan for correcting this

appalling state of affairs is by a liberal supply of sour milk, the lactic acid of which is inimical to the growth of putrefactive bacteria. In this connection it must be borne in mind that lactic acid fermentation in milk is due to the presence of a certain bacterium, which, as has been pointed out, though innocuous of itself, has the power of destroying that which is pernicious. Hence it would appear to be advisable that sour milk should enter largely into our dietary. Nor must we lose sight of the fact that milk, which has not undergone the process of fermentation, also contains bacteria which are not only benign in their nature, but which have also a destructive effect, though to a more limited extent, upon those which are prejudicial to health. These observations will prove of the utmost value if we will only devote to them careful consideration, "for man at present is out of harmony with his environment, and the customs of civilisation

have made demands on his animal frame beyond its power of contending with satisfactorily," the results being that most of the ills to which he is plausibly said to be heir, but which really are the direct consequence of his ignoring the beneficent laws of Nature, continue to hurry him to a premature grave.

It will not be difficult to infer from the remarks that have preceded that healthy cell life is incompatible with an impure blood stream, from whatever source or combination of sources it may be derived. Now, if the various cells and organs of the body are for a lengthened period compelled to derive their nourishment from a vitiated blood supply, no matter what the pollution consists of, is it reasonable to expect that they will be able to continue in healthy vigour and be competent to carry on their various functions satisfactorily? Need we wonder if their physiological harmony is seriously interfered with, and that a spirit of

mutiny should arise, just as in an army, for instance, when the food supply is considered defective, and that if matters are not speedily rectified this mutiny should spread till eventually the whole fabric is overthrown? This condition will naturally be most pronounced in that particular cellular tissue which possesses the most active propensities. Now, perhaps the most active, prolific, and versatile cell of the whole body is the epithelial cell, and it is to this, essentially, we must confine our attention in its relationship to cancer, as it is to a morbid metabolism of this cell that cancer is mainly due. The epithelial cell is possessed of enormous powers of reproduction, evidenced by the constant shedding and renewal of the epithelial layer of the skin and mucous membranes, while its activity is illustrated by the rapidity with which this process can be effected. Its versatility is demonstrated by the fact that, on the one hand, we are dependent upon it for the dense covering of the

whole body, which, though sensitive, through its nervous supply, to the slightest touch, yet is sufficiently protected from the hypersensitive soft tissue which lies immediately underneath. On the other hand, it constitutes the covering of the various mucous membranes, providing them with a power of secretion, not only of mucus to keep them moist, but also, in the air passages, with that antiseptic substance named mucin, which possesses such a potent effect upon any disease germs which may find access to the respiratory apparatus. In these positions the layer of epithelial cells are more or less opaque, but in the eye we find it is not only protective but absolutely translucent. In one respect, however, it is always uniform—that is, in its power of proliferation.

If the blood be kept in a healthy condition, barring accident, the epithelial tissue will, by virtue of the suitability of the pabulum it relies upon for its nutrition

and the nervous stimulus which is also essential to its well-being, continue in its healthy vital vigour, and perform its various functions in every respect satisfactorily. In order that this end may be attained, the strictest attention must necessarily be paid both to dietetic and hygienic laws, and, I need hardly add, if this attention is given—which is not a difficult matter—the reward will amply repay the effort put forth.

Let us now consider the various effects of a contaminated blood stream upon the epithelial cell, the culminating point of the pollution resulting in cancer. In the first place, we must bear in mind that this cell is a highly complex entity, of wonderful architectural structure. In its normal condition it is enabled to furnish a complete armour capable of resisting the entrance of any object between its minute plates, the density of its surface being quite sufficient protection against the assaults of certain micro-organisms

constantly present in the atmosphere which, when the health of the cell has suffered from any cause, frequently succeed in obtaining a footing. We are all well aware of the fact that when one's health is below par, whether due to overwork or any other cause, the resisting power to disease is decreased, and Nature calls attention to this fact in various ways. Now, as health cannot suffer without every cell of the body being injuriously affected and its vitality lowered, we frequently find that the first note of warning Nature sounds to call attention to the fact consists in a loss of functional activity of the skin or mucous membranes which have suffered, either from impurities within the blood, the accumulation of which they have been unable to cope with, or from an enfeebled nervous stimulus which may, and does, arise from the same cause, or from a combination of the two. As a consequence, the epithelial cells covering these surfaces cease to mature properly,

the result being an appreciable loss of density and compactness. This we see forcibly exemplified in that condition of the skin which favours the development of boils. These distressing affections are caused by the entrance of a certain microbe which, in the circumstances I have indicated, is enabled to penetrate the surface by way of the minute orifices through which the hairs emerge. Once it has gained admission the microbe becomes the parent of a colony, which sets up that intense irritation of the part and subsequent suppuration, a furuncle or boil. If means are not now adopted to restore the general health, and if friction be not avoided, the boil may proceed to a carbuncle. I would here like to add that one boil is frequently succeeded by a crop of this painful eruption in consequence of the practice of treating them by poulticing, which not only soddens the skin, thereby rendering it more prone to infection, but also promotes the development of the invading organism.

An enfeebled state of health, as I have stated, is due to a loss of vital energy, which is reflected upon every cell of the body, and in its early stages is accompanied by a feeling of discomfort and oppression. If Nature's warning is left unheeded, other symptoms of graver import may speedily follow. This morbid condition may be due to many causes, such as mental strain, which invariably has a depressing effect upon the digestive organs as well as upon those of secretion and excretion. The body, therefore, ceases to be properly nourished, and the blood becomes loaded with the products of decomposition which are constantly being generated by the physiological changes continuously taking place in the various tissues of the body. The vitiated condition of the blood stream which naturally ensues, charged as it is with this toxic material, may produce such a debilitating effect upon the epithelial cells as to render them incapable of arriving at maturity, with the result

that, instead of acquiring that horny character which fortifies them against the attack of external morbid influences, they succumb to their invasion, erosion of the surface of the skin being the result. In this way do we account for eczema and the intense irritation produced by it. On the other hand, certain impurities in the blood would seem to excite an undue proliferation of the epithelial cells forming the cuticle, giving rise to certain squamous diseases of the skin, of which Psoriasis is a good example.

Errors in diet will also exercise an important influence upon healthy cell metabolism, and, therefore, upon the integrity of the skin, mucous membranes and other tissues.

This is well exemplified in that bane of the sailor's life in years gone by. I refer to scurvy—a disease of the skin and mucous membranes, which not infrequently proved fatal—and scurvy was mainly due to the exclusion of vegetable matter from the

dietary, thus proving how largely cell metabolism is dependent upon the vegetable kingdom for its healthy performance. No doubt the unwholesomeness of salt meat exerted an important influence also, but this only goes to demonstrate more forcibly the effect of diet upon healthy cell life. Eventually it was discovered that lime and lemon juice acted very beneficially both as a prophylactic and also as a curative agent in scurvy, thus placing beyond doubt the fact that the human body relies to a very considerable extent upon a fruitarian and vegetable diet, especially in an uncooked condition.

Now the health of the body is, as I have stated, dependent upon the health of the cells of which it is composed. These cells, therefore, must be nourished in such a manner as will promote to the utmost their vital energy, and enable them not only to resist the invasion of disease germs, with which the human organism is perpetually struggling, but also assist them to

retain their harmonious relationship with each other. An enfeebled system is incapable of withstanding infectious disorders. Robust health is the best safeguard against disease, and this condition depends entirely upon the healthy vigour of the cells. The cells, therefore, must be our prime consideration, and must be fortified in every conceivable manner. Medicine, however, will not do this. No; we must not only study, but really conform to those laws of Hygiene and Dietetics which Nature has instituted for our guidance, for the observance of which she, if we are to keep ourselves up to the healthy standard, moreover, has provided ample means.

The cancer cell would never come into existence at all did we obey these laws. It is important to bear in mind that, so far as our present knowledge teaches us, cancer has not an infectious or contagious origin; scientific investigation has, I think, placed this beyond all doubt. The cancer cell is primarily a normal cell that has rebelled

against the persistent ill-usage it has been subjected to. In consequence of this it has gradually parted with its loyalty to those physiological laws which hitherto have regulated its cycle of life. We know it of old as an active, prolific, versatile, and adaptable cell. It can be successfully transplanted from one individual to another, and it is even capable of taking up a novel position, and carrying on its existence within a muscle, for example, when it has been carried into such a structure through a wound. Is it to be wondered at, then, that, as we know to our cost, a cell may, and does, frequently throw off its allegiance to those laws which govern healthy cell metabolism, take up a new *rôle* of existence and adopt cannibal proclivities, which it does when it develops into a cancer cell? It then ceases to depend entirely upon its normal source of nourishment, but attacks and preys upon its neighbours, invading their domain and overrunning it with its malignant hosts.

Eventually, if not arrested, it penetrates the lymphatic vessels, and thus reaches the neighbouring glands, setting up a new colony of cancer cells there, some of which make fresh inroads into more distant tissues. Not unfrequently it may eat its way into a blood-vessel, and thus be conveyed to distant organs, there to set up another focus of disease, and so on, until the poor victim, worn out and wasted to a shadow, falls into a premature grave. This is a dark picture to present to your view; but, fortunately, it need never be painted now. Even if it has been commenced, it may be rubbed off the canvas, if only common sense be carefully exercised.

My contention is, it will now be perceived, that the cancer cell is not due to the introduction of any agency, such as a microbe, from without, but is the direct result of perverted nutrition; and we know that certain effects upon animal life can be, and are not infrequently produced when

a certain object is aimed at. Take, for example, the evolution of the queen bee, which is entirely due to the kind of nourishment supplied to it. Moreover, there is fairly conclusive evidence that every variety of plant owes its power of procreation to the fact that its progenitor has conveyed to the seed the power to select from its environment that form of nourishment, and no other, which conduces to the development of the peculiar form and characteristics of its ancestor. That these can be improved upon by careful cultivation is apparent on every hand, while neglect will have an opposite effect. The lack of attention, therefore, to those laws which regulate healthy cell life cannot but result most disastrously, sooner or later, and it is only because Nature is so forbearing that it is not invariably sooner *than* later that she rebels.

One notable characteristic of animal life is the constantly living, growth and death of the cells, which is followed by the dead

cells being removed and replaced by others of a like nature, and fulfilling the same functions. This we call cell metabolism.

To enable this process to be continuous, a suitable nourishment must be at the disposal of the cell, and not only this, but an efficient nerve stimulus must also be simultaneously supplied. Wholesome food, in fact, is a *sine quâ non*. The food is taken into the stomach in a fluid or semi-fluid form, or, at any rate, this should be its condition before it enters the stomach, and this will be its condition if complete mastication is enforced. In the stomach and duodenum the food undergoes a process of decomposition, which we term digestion, after which what is superfluous or useless passes through the intestines, while that which is to be applied to the nourishment of the body is taken up by the lacteal vessels and transformed into blood. Then, by a wonderful network of tubes and tubules, said to extend to 2,000 miles in length, the

vivifying fluid is distributed to every part of the body, supplying nourishment and repair to muscle, bone, integument, nails, hair, the internal organs, and last, but by no means least, to that marvellous and complex apparatus which we know as the nervous system, which permeates and exerts its potent influence upon every organ and cell of the body, receiving from these certain important influences in return. Another necessity for healthy metabolism is an abundance of fresh air, which not only purifies the blood, but, in the process, supplies animal heat; to deprive the lungs, even for a few minutes, of air proves fatal. If to these two favourable conditions we add a copious supply of pure water, which should be freely and unsparingly applied both internally and externally, we possess all that is necessary to sustain health and life in a perfect condition—with this proviso, that there be constantly present an abundance of sunlight which, as we know, is just as essential

to the well-being of the animal as to that of the vegetable kingdom.

Let us now consider in what consists the essential product of this combination of factors, which is the vital agent concerned in the preservation of healthy cell life. There are distributed throughout the trunk, head, and neck certain glandular organs whose secretion have an important influence in this direction. This secretion, known as nuclein, is not only essential to the well-being of the gland itself, of which it forms an important constituent, but also performs an important office by virtue of its vitalising effect upon the white corpuscles of the blood and every other cell of the body, those of the nervous system included. Moreover, the individual cells themselves would appear also to possess the power of secreting nuclein, though perhaps not in sufficient quantity to supply the full amount necessary to meet their requirements. It goes without saying, therefore, that, if the

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cellular tissue is to be maintained in a healthy condition, the supply of nuclein must be ample.

I should mention that besides imparting vigour and vital energy to the body as a whole, nuclein also has an antiseptic effect upon toxic matter which may gain access to the blood by any channel, be it the skin, the air passages, the stomach, or the large intestine, thus inhibiting to a large extent the evil consequences that might otherwise supervene. From my platform of experience, I am inclined to look upon the large intestine as the most pregnant of all these sources of blood contamination, especially, as I have frequently pointed out, when constipation is present. Now, the contents of the colon tend to be more or less of a noxious character according to the diet indulged in. The more simple and rational the diet the less menacing are the intestinal contents, and, therefore, the less liability is there to putrefactive infection. There is, however, another im-

portant advantage accruing from a diet which is in direct accord with what Nature has provided for our food—which is, that it favours not only a more sanitary condition, but a healthier activity of the colon. On the other hand, more luxurious living, especially when a large amount of flesh meat is consumed, not only overloads the stomach with an excess of unwholesome material, with which it is impossible for its digestive power to contend efficiently, but, at the same time, provides materials which undergo a highly noxious fermentation when they reach the colon. This invariably results in the development of innumerable poisonous organisms, which, finding entrance into the blood, impair its vital energy to a very serious extent, and, when in excessive numbers, simultaneously prostrate the physiological activity of every blood corpuscle, cell, and organ of the microcosm. In consequence of this the general health becomes impaired, and the resisting power

to disease markedly reduced. Now, if these conditions are supplemented by an unsanitary environment, in which may be included a vitiated atmosphere, a polluted water supply, neglect of cleanliness, insufficient clothing, exposure to cold, and so on, it will not be difficult to comprehend that much more disastrous results will, as a matter of course, inevitably ensue.

It is impossible to over-estimate the value of nuclein as a pre-eminent factor not only in its relationship to the preservation of healthy cell life, but as indispensable in the struggle that is constantly going on against disease germs. It stands to reason that if the blood is continuously being overcharged with toxic material, from whatever source this may be derived—and once more I maintain most emphatically that the most important origin we have to take into account is the large intestine—the functional activity of the various organs which provide nuclein must of necessity become seriously handicapped, and the amount of

their secretion be accordingly reduced not only in quantity, but in quality also. From the same cause the vital energy of the nervous system will necessarily become impaired, and, therefore, the stimulus supplied to organic life, which is essential to every organ and tissue, will be seriously interfered with. Thus, the whole animal organism suffers from the same cause, for it should be borne in mind that the potentiality of the nuclein is limited.

For years past various gland substances, derived from animals, have been utilised in the treatment of disease, and, as we know, with considerable benefit, thus proving to what an incalculable extent the health of the body is dependent upon the abundant and healthy secretion of these organs. As we have seen, however, that both the functional activity of these organs, as well as that of the nervous system, are entirely dependent upon a pure and abundant blood supply, and that these desirable conditions can only be maintained by a strict adher-

ence and obedience to dietetic and hygienic laws as we so habitually do? As I have repeatedly affirmed, there is no reason whatever for the amount of disease that at present prevails, and is constantly bringing life to an untimely end.

Nature has amply provided the human body with means to successfully combat disease, but it is essential that we should not thwart her mandates. Moreover, she has not been parsimonious with her gifts, but has furnished sufficient provision to guard against risks that may arise from accidental infringement of her commands. This is every day apparent in the recuperative and healing powers she bestows, so that, really, she cannot be said to draw any hard-and-fast lines. She is most orderly in her methods, every organ and tissue having their particular duty to perform. As we have seen, there is a common product secreted by the cells of various organs, but that it is of uniform physiological potentiality is, I think,

doubtful, though in two respects it would appear to be consistent, and these are its antagonism to disease germs and its power of affording nourishment to the white corpuscles and the nervous system. It would appear that while it nourishes the latter, the secretion from certain organs influences its vital energy in given lines, and that which concerns us most at present is the effect the secretion of the thyroid produces upon those nerves which control healthy cell metabolism. That the thyroid gland is intimately associated with this has been demonstrated times without number, and it is interesting to note that epitherium depends to a very large extent, if not altogether, upon the condition of this important organ, and therefore upon its secretion. Many diseases have been proved to be closely connected with the departure of the thyroid gland from the healthy standard, and have disappeared under the administration of the uncooked gland of other animals,

for cooking, be it borne in mind, invariably destroys the therapeutic properties of these substances. It is interesting also to note that when the normal epithelial cell has been deprived of this wholesome influence, it manifests a marked tendency to adopt a depraved form of existence, the most serious of which consists in a morbid change in metabolism. As I have already pointed out, it severs itself from those physiological laws which hitherto have regulated its cycle of life, and, taking advantage of its inherent, vigorous, active, and prolific endowments, casts off its benign nature, and becomes a malignant cell. Thereafter, setting up a colony opposed to healthy discipline, it prostrates, invades, and transforms into its own debased condition the neighbouring tissues. This we recognise as that dreadful scourge—cancer. We perceive thus that cancer is not the result of a microbe or parasite, as some have supposed, and which not a few continue to

maintain, but is due to a perverted cell development resulting from a persistent ignoring of those laws which otherwise would have constrained the now diseased cell to retain its loyalty and allegiance.

Cancer is Nature's protest against disobedience, and the penalty she imposes upon those who, though, perhaps, more from the force of habit than knowingly or willingly, have ignored her teachings.

During the period, now extending over twenty years, that I have devoted special attention to this subject, with ample opportunity at my command for observation, I have never met with a single instance where constipation did not co-exist, and, moreover, had not been in evidence for a lengthened period prior to the manifestation of the disease. Furthermore, I do not believe that a normal cell will ever tend to develop a proneness to depart from its wonted integrity, or to sever its original relationship to its neighbours so long as the sanitary con-

dition of the large intestine is maintained.

Did not Solomon say, "Go to the ant, thou sluggard; consider her ways and be wise"? He might have added with advantage, Go to the beasts of the field, the fowls of the air, the fish of the sea, and even crawling things, for a lesson in common sense, and take an example from them in sanitary matters, and not harbour in your insides offensive and disease-generating material which you would not tolerate for a moment within range of your vision or olfactory nerves.

It will thus be perceived that the advent or prevention of cancer is entirely in our own hands, and I look forward to the time, and that at no distant date, when the attention of every one will be so forcibly directed to the subject that the disease will simply become non-existent. Prevention is always better than cure. Although I have had ample evidence of the curability of cancer during the past

fifteen years, what I aim at is to rouse the attention of the public, and point with every confidence to the fact—yes, *fact*—that with due attention to dietetic and hygienic laws, not only cancer, but other diseases as well, will speedily disappear from our vocabulary.

In conclusion, permit me to endeavour to reply to a question, which I am conscious some of you may feel inclined to put to me, seeing that I have laid so much emphasis upon the importance of nuclein as a vitalising agent. You would ask me, What is nuclein, or, at all events, what is your definition of it? Nuclein I would define as the vital principle upon which every cell of the body is dependent for its existence as a living organism; nay, more, nuclein may even prove to be intrinsically life itself. It has been said that “the blood is the life,” and doubtless, as being the vehicle by which nuclein is conveyed to the various tissues of the body, blood may have a claim to

be so considered. But when we bear in mind that life is capable of existing without the presence of blood, it can hardly, in truth, be conceded that the blood is the life. Consider, for example, the germ from which life, both in animals and plants, takes its origin. This contains blood in no solitary instance, but it invariably contains nuclein. It is due to the presence of this nuclein, this vitalising agent, that the germ, when the conditions are favourable, is enabled to germinate, and afterwards to develop into the animal or tree or plant, as the case may be. Moreover, it is due to the peculiar proclivities inherited from its ancestor that influences reproduction of the peculiarities and characteristics of the structure that eventually is evolved. As development proceeds nuclein increases *pari passu*, but its nature remains stable, and never parts with the endowments it has received from its progenitor. Thus, this subtle essence, if it may not lay

claim to be *the* life, may certainly yet be recognised as the medium by which life is originated and maintained, and not only the life but the characteristic attributes of that life. That nuclein is capable of reproduction is beyond doubt; also that it is the inherent property of each individual cell, and by virtue of its nature both emanates from it and again reacts upon it in a vitalising manner.

It must be remembered that nuclein pervades everything endowed with life, from the tiniest fungus to the massive oak, from the microscopic animalcule to the monstrous pachyderm of the forest, throughout the whole vegetable and animal kingdom. Essentially, it retains its identity wherever it exists—that is to say, it is the embodiment of life in all. That it differs, however, in potentiality is evidenced on all hands by the variety of animals produced and maintained through its influence. If we examine certain seeds, such as those of the fig and cress, for example—seeds of

very different members of the vegetable kingdom—it is impossible to say which is which, however rigid may be our examination. Yet if these, apparently identical, be placed in a similar soil, surrounded by the same influences, and subjected to the same sunlight, and watered by the same rain, how different are the results! Yet the life of each is dependent upon the vivifying influence of an identical agent, though endowed with different powers in the two instances. These two different potentialities continue, from generation to generation, to be exercised in the direction which has been followed without deviation from parent to offspring throughout the ages, and in one direction only. Notwithstanding this, however, we will find that in the human body, where a toxic condition of the blood has produced a debilitating effect upon those glands which secrete nuclein, upon which not only the glands themselves, but every other cell, depend, to a greater or lesser

extent, for assistance in the performance of their functional activity, the organs can be materially assisted out of their difficulty by nuclein, derived from vegetable or other sources, being administered. It will, no doubt, appear strange—to some, at least—when I state that the most prolific source of supply of this agent, for commercial purposes, is the microscopic yeast fungus, whose power of procreation—in a suitable medium only—however, is enormous. Vegetables of all descriptions, especially what we may term root vegetables, contain, as may be supposed, a considerable amount of nuclein, but if these are cooked in the ordinary way, not only is this vital principle destroyed, but their nutritive power also, and, at the same time, the vegetable is rendered more indigestible. The same observation applies to fruit and also to butcher meat. But, one may inquire, in what manner does nuclein act as an anti-septic, and thus become of importance as a foe to disease germs which may have

gained access to the blood? In reply, I would state that this is due to a chemical agent produced by nuclein—viz., nucleinic acid, which not only is powerfully antiseptic but also provides a healthy stimulus to the cells, and thus promotes in them healthy metabolic changes. Moreover, it removes effete matter without hurt, but, as we have seen, with benefit to the healthy structure.

Thus we perceive that nuclein is not only an essential agent in the cycle of life in man and beast, but also takes its place as a most valuable therapeutic agent when derived from other sources.

From the foregoing remarks it will be perceived that the conclusion I have arrived at is, that the cancer cell owes its origin, and that in a direct line, to a normal cell, this having undergone a morbid metamorphosis consequent upon protracted malnutrition. On the other hand, it is maintained by certain writers on the subject that the source of cancer is an

embryonic cell which hitherto has remained in a latent condition. How, then, are we to account for the fact that cancer is a curable disease when healthy cell metabolism is restored? Or is the hypothesis based on the fact that, in the condition of the blood which promotes the development of cancer this, not infrequently, is marked by a tendency for the mature cell to revert to its embryonic condition? This, I do not deny, may appear as a concomitant in the morbid metamorphosis, but that it is primarily the progenitor of the active cancer cell I fail to apprehend, or how would it be possible otherwise to recognise it? It may be, however, that those who have advanced this theory have been unaware of the fact that in circumstances which prove unfavourable to healthy metabolism there is established a tendency for certain cells to assume the embryonic form, while others arrogate to themselves an aggressive form of conduct. By this process of reasoning,

and this only, am I able to account for the presence of embryonic cells in cancer tissue in the few instances in which they have been recognised.

THE ORIGIN AND THERAPEUTICS
OF CANCER



CHAPTER VIII

THE ORIGIN AND THERAPEUTICS OF CANCER

THE study of cancer, as we know, is one of growing importance, and to which it is impossible to devote too much careful attention. In the endeavour to do justice to so momentous a subject it is incumbent upon us to make ourselves intimately acquainted not only with its ætiology (causation) but with those diagnostic features which differentiate it from affections presenting a somewhat similar appearance to the eye and touch. Now this is not always quite as simple a matter as some may imagine, and more especially in the initial stage of the disease. For example, several instances have come under

my observation during the past few months, where cancer of the mamma has been *stated to exist—diagnosed* would be an improper term—and where immediate operation had been urged by well-known surgeons, but on further examination the tumours proved to be simple adenomata, and readily yielded to a much more rational line of treatment. It is not always wise, therefore, to assume that because a tumour appears in an organ which is known to be susceptible to cancer, that it is necessarily of a malignant type. There may be a possibility certainly—though the probability is remote—that, later on, it may develop malignancy. It is, I am sure, because this mistake in diagnosis is so frequently made that we hear occasionally of non-recurrence after operation. On the other hand, when the diagnosis has proved to have been correct, and the tumour to be cancer, recurrence is inevitable, and, I venture to add, it will be difficult to con-

test this assertion for the cogent reason that it is a fact. How can it be otherwise, when we know that in the majority of instances an injury is the *exciting* cause of cancer—the predisposing cause being so far latent in each instance—and when we realise that a much greater injury is inflicted by the mutilation of the parts, which is necessarily the accompaniment of an operation of such magnitude? It is a noteworthy fact that the recurrence invariably manifests its presence primarily in the weakest structure, viz., the cicatrix, and thence radiates to the enfeebled tissues in its immediate neighbourhood. Having admittedly such ample evidence of the mischief the knife inflicts in malignant disease, and knowing that in no instance can it possibly hold out the remotest prospect of conferring any benefit whatever, but on the contrary invariably shortens life and aggravates suffering, how can any right-thinking man deceive both himself and his patients by having re-

course to it. No; our line of duty points to our employing unremitting effort to discover a more rational method of dealing with this formidable disease. In our endeavour, then, to attain this desired end, it is essential in the first instance that we devote the most careful study to its natural history. Doubtless, without fear of contradiction, we may now assume that cancer is not due to a parasite of one kind or another, as so many, only theoretically however, have persistently maintained. This theory I have no hesitation in averring has been exploded by authorities whose conclusions are based upon much more substantial foundations than the advocates of the microbic or parasitic theories are entitled to build upon. We therefore are left no resource but to search for an explanation of the incidence of cancer in hitherto untrodden fields of investigation. In this we must of necessity be guided to a great extent by noting the pathogenic conditions which, as far as we

can judge, lead up to its development. We will require also carefully to observe those surroundings which we know obtain where the predisposition to cancer is absent. We are aware, for instance, of the very striking circumstance that it is unduly prevalent in civilised nations, and still more so in proportion to the extent that luxury and self-indulgence prevails. Metchnikoff says: "The refinements of civilisation has made the demands on man's animal frame too heavy to meet; and to this we may trace at least most of the ills man is heir to." Among savages cancer has been proved to be non-existent. We cannot, therefore, but admit that our mode of life exercises a considerable influence in its causation. Moreover, in wild animals it is unknown, yet it would appear to assert its presence in animals and even in fish whose lives are spent in the neighbourhood or under the influence of man. That the tumours in these instances are identical with cancer in the

human subject I am inclined to doubt, and for this reason—that in store-fed cattle, for example, the disease, designated as cancer—whatever be its nature—does not seem to affect the nutrition of the animal, whereas in man it always does so very markedly. I have known cases where attenuation was so rapid that the patients lost flesh at an alarming rate. One case is present to my mind where the loss of weight was three stones in as many months. Again, we should not lose sight of the fact, that the growths which develop in animals only occur when they are overfed, and upon materials which differ substantially from their natural food. This applies equally to fishes in a river or estuary into which all sorts of extraneous matter is emptied, much of which is consumed by the fish. This being foreign to their normal requirements, and therefore unsuitable to them as healthy nutriment, and, moreover, being superabundant, will eventually act detrimentally upon their

organs of digestion and assimilation, thus upsetting their physiological equilibrium and so give rise to abnormal cell metabolism.

We seem impelled, therefore, to the inference at all events, if not to the conclusion, that the mode of life plays a most important *rôle* in the production of cancer. That it is a disease quite independent of any specific agent from without is beyond dispute. We have no choice, therefore, but to search for its causation within the body itself, and endeavour to ascertain in what consists the influences which so interfere with normal cell metabolism as to enable certain cells to assume a character altogether at variance with that of the normally conducted cells from which they sprung and of which they are the direct descendants. With this change they would appear to have dissociated themselves and severed their allegiance to those physiological laws which regulate those metabolic phenomena characteristic of normal

cell life. Ultimately they develop a morbid influence which is inimical to the integrity of the tissue from which they emanate, and by which they are encompassed.

Having separated themselves from those laws which control and govern healthy metabolism, they eventually become a law unto themselves, and establish a potency quite foreign to that of healthy cells. Their instincts, it would appear, have undergone a complete metamorphosis, for in place of deriving nourishment from a normal source, they commence to prey upon their neighbours, and, devouring these, replace them by their own voracious progeny, which continue to increase in numbers at an alarming rate, involving successive areas, and, by the lymphatic channels, extend their sphere of influence, establishing new centres of disease in neighbouring glands and distant tissues. Meanwhile the vile juices, which these cannibal cells throw off, contaminate the

blood with their poison, when the conquest becomes complete.

Now arises the question, What are the predisposing causes which, if not suppressed or overcome in the initial stage of their activity, will eventually culminate in a calamity? Can they be restrained, and can they be conquered? I have no hesitation in replying in the affirmative to both questions. It is needless for me to enter fully into the pathogenesis and pathology of cancer at this time of day, seeing these subjects have been amply dealt with in my book, published three and a half years ago, but I will just touch upon one or two points of interest, which I am convinced bear to an important extent upon the pathogenesis of the disease.

The organs of the human body are only capable of accomplishing a limited amount of work, and though more elastic than an ordinary machine, yet when persistently overtaxed they eventually are liable to

succumb, and especially will this prove to be the case if they are handicapped by certain important hygienic laws being continuously ignored—which laws, when in force, act as safety valves. If, for example, an individual—and there are many such—will persist in indulging too freely at the table, thereby habitually burdening the stomach with more work than it can efficiently and advantageously perform, the functional activity of the organ will, as a matter of course, speedily be reduced to a dangerous extent, when a larger proportion of the ingested, but not digested food, will find its way into the colon in a decomposed and highly offensive condition. If, however, the effete matter is discharged without delay, possibly little mischief beyond a slight amount of discomfort may result. On the other hand, however, if the colon and rectum, from lack of expulsive power—and this is as a rule due to neglect—should be so tolerant of this foetid

material as to permit of its retention for a longer period than is desirable, then absorption of toxic material is sure to take place, resulting in contamination of the blood stream and deterioration of its essential constituents. The consequence is, physiological sequence is liable to occur in an erratic manner, and the various organs are rendered incapable of remaining true to their vital relationship with those organs and tissues which are subordinate to them. Especially does this condition of the blood seem to act prejudicially upon the thyroid gland, which we know in its active condition exercises a most important influence upon cell metabolism. Now if this organ, for a lengthened period, continues to receive its blood supply from a vitiated source, it not only loses its functional activity but gradually undergoes an atrophic change, and consequently is liable to become permanently disabled; and it has been demonstrated that atrophy, or at least a

diminution in size of this gland is, as a rule, coincident with the advent of cancer.

Now, from my point of view, if a person is a gross feeder, and more so if he indulges to excess in animal food, and if there is superadded a constipated habit, which has such a pernicious effect upon the thyroid gland, we may conclude there are present the three most important factors whose combined influence is sufficient to provoke a tendency to the development of cancer.

“Recent research, as we have observed, has shown that the bacteria of the human intestine increase at the rate of 128,000,000,000,000 each day, the greater part being found in the large intestine.” Can we be surprised, then, that with such a poison factory within him, that the blood will become sadly vitiated, and the normal processes of the economy be injuriously affected, if constipation is coexistent? The longer this offensive material is retained

the more obnoxious it will become, and its toxic effect increased *pro rata*.

Now, it has been demonstrated that the secretion of the thyroid gland exerts an inhibitive influence upon this toxic matter when absorbed, so it is not difficult to comprehend that if its vital force is reduced, how very serious a menace to health constipation will become. The first principle, then, we must inculcate, when both the prevention and treatment of cancer is under consideration, is to insist upon a complete daily evacuation of the bowels; second, that the diet be restricted to the actual requirements of the body and the capabilities of the digestive organs; that butcher meat be barred and a vegetarian diet be relied upon to a large extent. Thirdly, that the defective action of the thyroid be supplemented by the administration of the gland of healthy animals, or the active principle of the gland, at least three times daily. Thyrocol is what I rely upon. This is

prepared and dispensed in palatinoids, each containing an equivalent of five grains of the gland substance. Fourthly, as saccharomyces are invariably present in the blood in cancer subjects, and as these act injuriously in inducing fermentative changes upon the absorbed enterotoxins, these should be destroyed by giving ten to fifteen grains of salicylate of soda or aspirin thrice daily along with a thyroid preparation.

In parentheses permit me to make a few observations regarding this thyroid gland, the functions of which have only been understood within recent years, and yet it is now recognised as one of the most important organs in the body. Before physiological research had demonstrated the hitherto undiscovered virtues of this gland, which is situated on the anterior aspect of the neck, its principal interest centred in the fact that it was the seat of goitre, this disease consisting in an enlargement of the thyroid gland.

Now, we know that the thyroid is concerned in a great many diseases, the most important of which is cancer, when we invariably find the gland has become atrophied or shrunken. In diabetes, on the other hand, it frequently shows symptoms of fatty degeneration.

It exerts a most powerful influence in preserving the purity of the blood stream, which is accomplished by a destructive or neutralising power it exerts upon poisonous material that may have gained access, by absorption, into the vital fluid. To enable it to perform this duty more efficiently, as one observer has stated, the blood performs two circuits through the thyroid before its return to the heart—thus there is afforded a double opportunity to exercise its cleansing effect.

The thyroid, however, exercises other most important sway in the economy of Nature. To its healthy influence is due the integrity of cell life, and when we come to consider that each cell of the

body, minute though it be, is a distinct entity, and, unless under proper control, liable to depart from the normal to an abnormal condition, which, as we know, means disease, we can readily comprehend how important a place the thyroid gland occupies in the anatomy of all animals.

If the uterus is the seat of disease, the parts should be kept scrupulously clean by douching, after which a tampon, saturated in a 10 per cent. solution of ichthyol in glycerine, should be introduced, and renewed every twenty-four hours for a week or two, and afterwards at longer intervals.

IS OPERATION JUSTIFIABLE IN
CANCER ?

CHAPTER IX

IS OPERATION JUSTIFIABLE IN CANCER ?

THE question of the day, with regard to cancer, is, Are we to continue to be bound hand and foot by prejudice? Is the endeavour to solve the problem, which for so long a period has exercised the scientific world, to be frustrated by such considerations? Is the public welfare to be sacrificed in order that a few men may be permitted to perform operations which it is well known only shorten life and aggravate suffering? Why, the very nature of the disease contra-indicates operation, and this has been amply confirmed by sad experience. Were it a local disease and nothing more, were there no blood contamination lurking behind,

then surgical interference would be warranted—nay, more, it would be wrong not to resort to it. But when we know for a fact that primarily this fluid is the nidus of the disease, and it is to this fact our chief attention should be directed, and that the surgeon only deals with a local manifestation of this, it does not require a high intelligence to conclude that temporary, and often very transitory relief to a symptom can in no instance succeed in removing the disease, of which the local manifestation is only an outcrop. Moreover, cancer is a preventible disease, resulting in every instance from a contravention of hygienic and physiological laws. The local affection, or cancerous growth, can only manifest its presence and develop its malignancy when the part has been previously weakened by injury, or exposure to other depressing agencies. How, then, can we reasonably expect a satisfactory result, if we still further induce weakness by cutting and hacking the tissues,

which cannot be avoided during the process of removing what can only be looked upon as a symptom, though certainly a most prominent development, but in *no* instance does it represent the disease as a whole. The consequence is, the disease, in a very short space of time, reappears with renewed virulence in the mutilated part, and speedily rages with increased potency, the progress of the local mischief being much more rapid and painful than if the parts had been left alone. The sufferings of the patient are, in consequence, intensified, and life shortened, which, in the circumstances, is perhaps just as well. On the other hand, had the disease been treated by rational measures, which consist in endeavouring to restore the physiological reciprocity which exists between the various organs, and which at all times must exist when perfect health obtains, how different would the result have been to the poor patient! The surgeon certainly might have suffered in his

purse, but, on the other hand, that of the general practitioner would have been replenished, if that is of any moment. But what is of paramount importance is, the patient would have been delivered from all this torment, and his or her life prolonged, had his adviser not been fettered by custom and drugged by prejudice. And if it is of consequence to the family attendant, he would be recompensed for services rendered, and deservedly so, for he would have been enabled to treat his patient, himself, hygienically upon lines which would hold out infinitely greater hope than surgery could ever profess to do. I make this statement unreservedly, because I maintain that salvation is quite possible, even in advanced cases, and almost certain if the case is brought under treatment in the early stages of the disease. I certainly am not acquainted with any remedy that will act upon the diseased tissue and destroy it by direct action, though there are certain agents

which will materially assist in accomplishing this desirable end. I affirm, however, that the constitutional measures which I advocate will most assuredly produce a most favourable effect upon the normal cellular tissue immediately surrounding the diseased structure, which will thereby be endowed with sufficient vital energy to enable it to withstand the cannibal propensities of the disease. Now, as the spread of a cancerous tumour depends upon its ability to invade and utilise for nourishment the tissues immediately in contact with it, and which its immediate proximity to has enfeebled, it is not unreasonable to infer that, if it is unable to avail itself of this, its progress must, as a consequence, become arrested, and this because it will necessarily succumb to starvation. In process of time, therefore, it will be absorbed and cast off as effete matter. Now the line of treatment which I have formulated and adopted accomplishes this—a fact which has frequently been demonstrated.

Permit me to quote the following authorities in support of my contention:—

“Operations for cancer, instead of stopping the disease, actually seemed to hasten it.”—Sir BENJAMIN BRODIE.

“Operations for cancer never arrested, but uniformly accelerated the progress of the disease.”—Professor M'FARLANE.

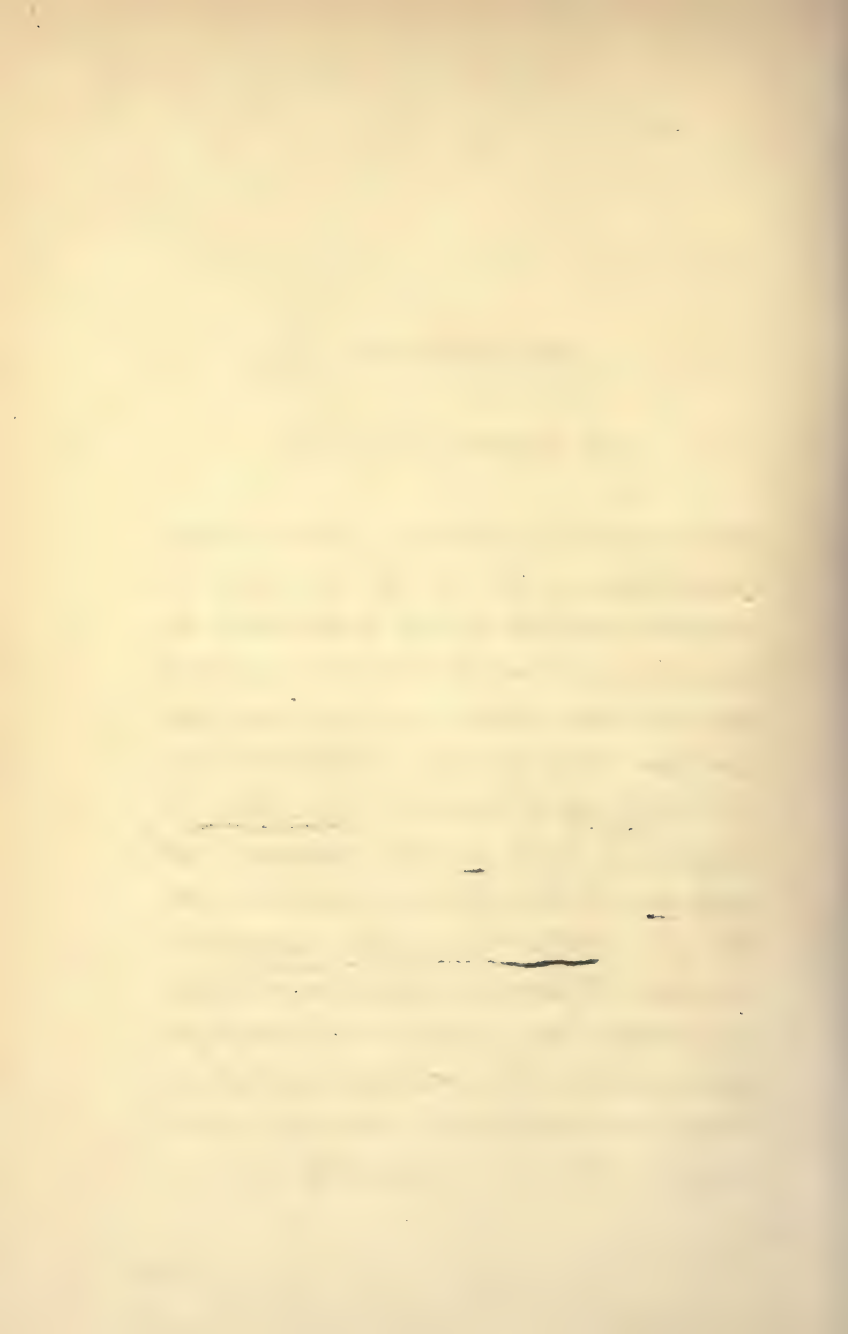
“The extirpation of cancerous growths with the knife can neither be regarded as a means of curing cancer nor of prolonging the existence of persons afflicted with the disease.”—Professor WALSH.

“Operations as a cure for cancer are an illusion.”—Dr. WEEDEN COOKE, who for twenty years was surgeon to the Cancer Hospital, London.

“It would be better for the interests of humanity, and the credit of surgery, if operations for the cure of cancer were altogether abandoned.”—Professor SYME.

“Assuming that the patient survives the risks and effects of an operation, I venture to say that the number of cases in which the disease does not return is not more than one in five hundred.”—Sir JAMES PAGET.

THE DIETETICS OF CANCER



CHAPTER X

THE DIETETICS OF CANCER

THAT cancer is Nature's protest against overindulgence of the appetite and the persistent neglect of, or disobedience to, those hygienic laws which she has enacted, becomes more evident the longer one pursues the study of this dreadful scourge. It is imperative, therefore, that dietetics, in relation both to the causation and treatment of this disease, also to its prophylaxis, receive the most unremitting attention. I have no hesitation whatever in asserting that cancer is a preventable disease, and I am sanguine enough to predict that before ten years are over our heads it will be as rare as it is prevalent

to-day. My conviction is, there is enough common sense in the world which, when exercised, will so influence its fortunate possessors that they will no longer continue to court disease by following the pernicious example of those who have preceded them, which they and their predecessors have unwittingly been doing, not only for generations, but for centuries past. What we are pleased to term civilisation has a good deal to answer for, and certainly cancer is an evil which is attributable to a very considerable extent to flagrant errors of diet for which civilisation is directly responsible. Moreover, what we complacently term the refinements of civilisation have had no little influence in the past—I am glad to say not nearly so much so at the present time—in inviting disease by affecting a modesty which is quite out of place, when so much depends upon plain speaking, and this applies specially to the education of the young. Why, I ask, should the young people not

be taught to adopt measures to promote their health, and to obey those laws Nature has laid down for their guidance, when their whole future depends so much not only upon a healthy body, but what is dependent upon this, an active brain? Why should our youth not be informed of the evil consequences, which will inevitably supervene, if implicit obedience is not given to those fundamental principles upon which a healthy constitution depends for its existence?

We are possessed of appetites of various kinds, and if one or other of these are indulged in to excess, and more especially when they are satisfied by unwholesome material, not only will the organs directly involved, but the whole body, eventually suffer. Slavery is ignominious, but when it takes the form of gluttony it is contemptible. To preserve health one must curb the palate and exercise an amount of restraint which presents itself to many as one of the great trials which man has to

contend with. There is one thing certain, however, if he does not make up his mind to do this, he will most assuredly suffer for his temerity. The stupendous amount of disease and suffering, which are due *solely* to lack of discipline over the appetite, is apparent on every hand. It is not, however, my aim to moralise, but to endeavour to point out the measures by which cancer may be prevented, arrested, and even eradicated when it has manifested its presence.

I fear the value of dietetics, not only in the prophylaxis, but in the treatment of disease, have not received that amount of attention which they merit. No matter what may be the nature of the disease, dietetics must always prove a valuable auxiliary in the treatment of it. If the diet be plain, simple, and wholesome, the tendency to overindulgence will be minimised. No one will dispute that a good appetite is a splendid criterion of health, so long as it is supplemented by an equally

good digestion. It should require no secondary or additional stimulus conveyed through the olfactory nerves in the form of savoury odours emanating from the kitchen, which, being reflected upon the gustatory nerves, excite the palate, giving rise to that fictitious appetite so essential to the gourmand, and which he seems to live only to gratify—otherwise his chief object in life would appear to be gone, for he is the *creature* who lives to eat, not the *man* who eats to live. His is a dietary which acts as a slow poison, as in its preparation it is rendered unsuitable to the requirements of the human frame. Moreover, the digestive organs are incapable of dealing with the excessive amount of viands which the palate entices its owner to thrust into the stomach. Still the process is repeated day after day, and, as digestion of the material is impossible, it undergoes a process of fermentation, the products of which are acrid acids and noxious gases, the which irritate and dis-

tend this long-suffering organ. But the stomach is not the only organ that is directly affected injuriously. The movements of the heart are seriously impeded, and the due expansion of the lungs interfered with, by the pushing of the diaphragm upwards and its mobility being restricted. In some instances the stomach may reject the whole of the noxious contents by the act of vomiting, when it will obtain relief for the time being. But if this happy relief is not forthcoming, the decomposing mass is shunted into the intestines, there to undergo a further process of decomposition, culminating in the development of myriads of enterotoxins. Now these, gaining entrance to the circulation, produce a form of toxæmia which renders the blood a fertile receptacle of disease, assuming various phases, which otherwise it would have had no difficulty in repelling.

How totally different is the effect of a plain, rational, and nutritious diet upon

the man who *eats to live*. His appetite requires no pampering and yet he enjoys his food, and at the same time, what the gourmand is deprived of, he is thoroughly alive to all the pleasures of life and able for its duties. His stomach is not over-taxed, and so long as he conforms to the demands which are formulated in the code of hygiene he will not only continue to be proof against the ravages of disease, but have confidence in looking forward to a healthy old age. He is not harassed by the penalties, which invariably are exacted, when the capabilities of the stomach are overstrained, and if he would conform rigidly to those laws which have been decreed to regulate the life of man "he would not defile himself with the portion of the king's meat" (Daniel i. 8). One thing is beyond all question, and that is, the more simply we live the longer we will live and the more pronounced will be our enjoyment of life. Who ever heard of a gourmand being happy at any other time

than when he is gorging himself with savoury dishes, and who ever heard of him living to a ripe old age? No, his fate will have been suicide by a slow but sure process, long before that period was attainable.

The thyroid gland is given to us to counteract the evil effects arising from accidental or occasional departures from a normal diet, or transgressions against hygienic laws; but to expect it to set itself up as a fortress against persistent attacks of the enemy is demanding too much. The consequence is, when the evil course is pursued unremittingly, its kindly authority is overthrown and cell metabolism, which had hitherto been through its influence going on harmoniously, breaks out into open rebellion, culminating in disease, this being the most undesirable form it assumes.

No doubt a savoury meal is very enjoyable, but the enjoyment is very evanescent. I do not admit, however, that a man who

continually indulges his palate by this kind of mess enjoys his lunch, for example, more than I do mine of bread and cheese, or my apples and cheese, or salad and cheese.

Perhaps he is not aware that the very mode of cooking, nay, the very act of cooking his dainties, reduces their food value and renders them more useless as an article of diet, and, *pro rata*, a factor in the production of dyspepsia and other evils.

The relation of diet to disease is one that unfortunately has not received the attention it merits, seeing it exerts such an important influence not only in the treatment of disease—and this applies specially to cancer—but in the prevention of it on the one hand and superinducing it on the other.

In the earlier pages of the history of the human race there is not much mention made of disease, nor does the evidence we possess tend to indicate that at this period

man was subject to those ills which flesh is said to be heir to. No, the evidence goes to prove that they have all been acquired, and afterwards cultivated and harvested, until now they are sown broadcast over the face of the earth.

We have it on the highest authority that man in those primeval days attained a longevity which is quite incompatible with our degenerate frames, and this degeneration and incapacity for length of days seems to me to be entirely due to the natural tendency of man to disobey laws, the observance of which is essential to his well-being both bodily and spiritually. So long, therefore, as man obeyed those laws which were intended to guide him as to his conduct and mode of living, he was healthy and long life was ever his reward. On the other hand, the artificial life we live, and the amount and variety of material, quite foreign to the requirements of our body, which is continuously being substituted for its normal suste-

nance, have brought us to the conditions we are at present reduced to.

Were I asked, What is the secret of long life as attained by the patriarchs of old? I should reply, living a natural life, and subsisting upon the food their Creator ordained they should rely upon (see Genesis i. 29).

Now, while I hold that our actual necessities, both as regards the supply of physical and mental pabulum, are all obtainable from the vegetable kingdom; yet were this supply solely relied upon, we would not only be happier, healthier and longer lived; still I do not go so far as to insist that a vegetarian dietary is essential to health, happiness, and long life. What I do maintain, however, is, that as our digestive organs were originally constructed to deal with vegetable matter only, and our physiological needs must rely upon our food being composed, to a much larger extent than we are inclined to admit, of *uncooked* vegetable

products, it is incumbent upon us, if we aim at fortifying our bodies against the onslaught of disease, that we conform more rigidly to those laws which Nature has laid down for our guidance. It is unnecessary for me to recall the many palpable instances of disease due to the neglect of these laws and which disappear when the balance of Nature is restored by complying with her demands. Some of these have been and will be referred to again.

It is not simply indispensable that the vegetable kingdom supplies our daily wants to a much greater extent than at present obtains, but that it does so in a much more wholesome manner than habit, more than common sense, has for centuries dictated. Hence our susceptibility to disease in its varied disguises. Now it must be admitted that disease is in every instance the penalty imposed for infringing those laws which were instituted at the commencement of the human era.

We will ascertain, if we consider the subject carefully, that the nutritive properties of vegetables and fruits are materially modified in the process of cooking. Not only is their value as an article of diet reduced, but their digestibility also. Besides these, in no small degree, their nourishing constituents are removed, and what is of equal moment, their therapeutic activity is thereby diminished.

Let us consider what effect boiling produces upon vegetables or any other of the various articles included in our dietary.

Does the albumen present remain in its natural condition with its latent vital energy still unimpaired? Certainly not; its essential characteristics are entirely destroyed, its composition altered and its nutritive value reduced *pro rata*. Then it must be conceded the therapeutic and also the sustaining value of the vegetable or fruit is seriously reduced by the removal of the soluble salts which are carried away in solution during the process of cooking.

The following well-known experiment will demonstrate how important is the change in character which takes place in the component parts of vegetable substances during the operation of cooking. Take the kernels of a few peach, plum, or cherry, stones and crush them in a mortar, when we will find that the amygdaline has combined with the albumen of the seed, the result being the formation of cyanogen.

We will also be able to detect the presence of cyanogen in the saliva of individuals after they have partaken of salads made up of a variety of uncooked vegetables. Now take a like number of kernels of any kind of stone fruit and boil them for an hour, by which time the albumen they contain will have become coagulated, and notwithstanding the fact that their composition has undergone no change, yet crush them as you will, this catalytic effect will not follow. The vital energy of the seed has been destroyed, and, *pari passu*, the chemical, which were the

vital properties, it originally possessed. Does it not follow, then, that cooking not only diminishes the food value of vegetables and fruit, but also destroys those qualities which are evidently essential as factors in the maintenance of healthy cell metabolism? I am certain it does, and I say so because I have had ample opportunity of demonstrating the highly beneficial effects an uncooked vegetable diet produces upon cancerous growths. Indeed, so convinced am I of the value of a diet largely composed of uncooked vegetables and fruit—nuts, of course, being included—that I have no hesitation in proclaiming that if a liberal supply of uncooked vegetables and fruit were included in our dietary, cancer would soon become a matter of history only. Moreover, I am convinced that a diet of this nature would, unaided, prove a sufficiently powerful therapeutic agent to rely upon in the treatment of this disease. My reason for hazarding such a statement

being that it would prove of immense assistance in re-establishing healthy cell metabolism, and it would accomplish this by providing in sufficient quantity that pabulum which the blood requires to enable it to supply an adequate amount of vital energy to the various organs which their physiological necessities demand, the supply of which had hitherto been deficient. I have, however, not deemed it prudent in the meantime to rely entirely upon this line of treatment, as I firmly believe I am quite entitled to do, seeing I have for years past obtained most encouraging results by it in combination with thyroid gland substance or its active principle. I therefore do not feel called upon to discontinue the latter for the time being.

I do not wish to dogmatise or insist upon one relying solely upon a dietary of fruit and vegetables, though I am convinced this is what was ordained to be our food supply; but what I do insist upon is, that uncooked fruit and vegetables should con-

stitute a considerable portion of our daily rations. Even if we consider the effect of a meat diet, experience teaches us that cooking, by coagulating the albumen (and a similar effect is produced by pickling), not only reduces its food value, but renders it more indigestible. Moreover, the albumen of raw meat would appear to be capable of supplying the system with that special form of nourishment which assists cell metabolism even without the aid of much vegetable matter. We have only to refer to the dietary of the Esquimaux in proof of this, whereas we have had ample evidence on the other hand to show the evil effects produced upon the cell development of the epithelium and endothelium when our sailors were compelled to rely upon a pickled and cooked meat diet, scurvy being the result. It was then lime juice—at the time quite an empirical remedy—was found to be of immense value as a prophylactic, and proved unmistakably that normal cell metabolism could not

proceed upon the meat, and such a meat diet as our poor sailors were condemned to subsist upon. Comparing, then, the different effects produced by a meat diet in the case of the Esquimaux, on the one hand, where the albumen was left in its natural condition, and in that of our sailors on the other hand, where the normal condition of the albumen was destroyed by pickling and cooking, we are bound to admit that it is the altered character of the albumen which adds to its unwholesomeness as an article of food.

Over twenty years ago, when my health suffered at intervals from overwork, I, like many others from a similar cause, was subject to boils. Now we know that the epithelium, when in a healthy condition, is impervious to all microbic influence. On the other hand, if from any cause the epithelial cells do not come to maturity before being thrown off, the succeeding cells lose their horny character and permit the entrance of that microbe

into the hair follicle, which gives rise to what are erroneously termed heat spots, and which frequently develop into boils. During one of these attacks a friend advised me to eat at least half a dozen oranges every day. I followed his advice and the effect was most gratifying, and I have acted upon it repeatedly, as well as recommended it to my patients, and always with satisfactory results. These I can only attribute to the beneficial effects produced upon cell metabolism by the extra quantity of fresh fruit supplied to the system. It would appear, therefore, that other affections of the skin are due essentially to the same cause as scurvy, though not perhaps to the like degree.

There can be no doubt, I think, that vegetarians take a most rational view of dietetics, but they unfortunately miss a most important point when they cook their vegetables and fruit. If we look upon the subject from a common-sense point of view, there can be no reason why we

should not eat *all* our vegetables and fruit in the condition it is presented to us by nature, when we make exceptions in the case of lettuce, endive, radishes, celery, young onions, mustard and cress, &c., and the various fruits in their ripe condition. On the other hand, vegetarians do not bar milk, cheese, and eggs from their regimen. Their principle is to abstain from every article of food where life has to be destroyed to procure it. But to return to the non-vegetable food which vegetarians admit into their dietary, as I have observed, we will find that cooking in every instance has the effect not only of reducing their value as nourishment, but also of rendering them more indigestible.

The only articles of food which do not appear to be affected prejudicially by cooking are those which contain a large amount of farinaceous material, such as the cereals and potatoes. In offering these remarks I do not for a moment wish it to be inferred that I object, from a dietetic point of

view, to the cooking of such articles as eggs and milk, but my desire is simply to point out the effect cooking has upon their food value. So long as we adopt a dietary composed principally of vegetable and fruit, what might be considered forbidden articles, if not too freely indulged in, may I think, be taken with impunity. What I wish to accentuate is, that indulgence in these to the exclusion of a sufficiency of the former upon which the various organs are dependent for the continuance of their functional activity, should be condemned.

I hope the arguments I have advanced in favour of uncooked vegetables will have proved fairly conclusive; but there is yet another which I hold is of paramount importance—this is based upon the fact that all vegetables and fruit are possessed of a latent vitality even after they are separated from the parent stalk. This vital force we know exists in seeds and root vegetables also to a certain degree,

and may remain in abeyance for an indefinite period providing the circumstances are favourable. The essential constituents of the seed, however, must continue to exist as separate entities, consequently the vitality of the seed remains in a latent state. These important entities, as has been observed, will lose their vital principle if they are subjected to heat sufficient to coagulate albumen. Now this we know is an indispensable part of every seed and is essential in the process of germination. So long as this remains intact and in its original condition it possesses the power of parting with its nitrogen and combining with the carbon of the amygdaline, also present, to form cyanogen. This would appear to be the agent which endows the seed with vital energy and procreative power. The result is germination and subsequently cell proliferation, which we term growth; so that cyanogen or cyanogen in combination with hydrogen forming hydrocyanic acid, though a deadly

poison, would seem, when in minute quantity, to be essential to the development or at least the continuation of life in plants, and in my opinion the functional activity which controls the healthy metabolism of cells in animals is derived from this source. Now, as heat destroys the possibility of this catalytic action being produced, does it not stand to reason that if, by cooking vegetables and fruit we deprive these of their vital principles, that we, as well as seriously reducing their food value—what is of equal importance—destroy that which constitutes a physiological necessity. If the presence of this nascent vital principle is essential to cell life in plants, why should it not, if transferred in its active condition to animals, exert a like influence? We have indisputable evidence that the thyroid gland, when administered in its natural condition, assists materially in restoring to healthy activity cell life, which previously had been prostrated by disease;

but this would prove inert as a therapeutic agent if its albumen were coagulated by heat in the process of cooking. What reason, then, have we to suppose that the conditions should differ in the case of vegetables and fruit?

I have no hesitation in stating that had we not gone astray in the matter of diet and used our teeth unduly upon food they were never intended to be employed in masticating, but conformed to the regimen originally laid down for our guidance, there would not exist the tendency to decay of these important aids to digestion, which is now characteristic of civilisation. We have only to look at the mouths of savage races to prove the correctness of this statement. *Pro rata*, as luxurious living displaces a normal diet, so, not only the integrity of the teeth suffers, but the health of the individual deteriorates and life is curtailed. It would seem that the presence of nascent cyanogen within the seed of plants and vegetables which

are adapted for human food, though in infinitesimal quantity, is essential to their existence and preservation. We will also find it present in the flower and the fruit, though not to the extent that it is found in the seed, which is the direct and most important offspring of the flower. To it we owe not only the sweet fragrance of many flowers, but also the flavour of a variety of fruit. In some it is modified by other agents, while in quite a variety it is accentuated, but in all I am inclined to believe it is the predominant influence.

From the foregoing remarks it will not be inferred, I trust, that I advocate a dietary entirely composed of uncooked vegetables and fruit, but what I recommend is that these articles should be partaken of in much larger quantities than usually is the case. In my opinion cell metabolism cannot proceed satisfactorily if this is not supplied in a liberal measure. Salads composed of vegetables, where a sound set of teeth is essential to their

thorough mastication, can be passed through the mincing machine, which will, for the purpose, prove a good substitute. For nuts of all descriptions and almonds it answers admirably, and even for apples it can be usefully employed.

When vegetables are cooked in the ordinary way, as I have stated on a previous page, a considerable amount of their valuable properties are lost by solution in the water they are boiled in. To avoid this waste of valuable material it is advisable to have them cooked by steam heat, which not only provides against any loss, but also improves the flavour. There are several appliances which serve this purpose; but what I employ is called a boilerette. This is made either of tin, copper, or aluminium. In conclusion, permit me again to call attention to the necessity of a complete evacuation of the bowels every twenty-four hours. I need hardly add that the diet recommended will assist materially in this direction.

THE APPROACHING CONQUEST OF
CANCER



CHAPTER XI

THE APPROACHING CONQUEST OF CANCER

WHILE all who are interested in the treatment of cancer will hail with satisfaction and pleasure the record of those gratifying results said to have been obtained by the introduction of trypsin into the blood stream by certain enthusiasts, it would be foolish in the extreme to imagine for a moment that trypsin or any other isolated agent will ever per se, prove an antidote to cancer.

It is not my intention at this time to extol any other method of treatment of this disease, though I am well acquainted with such and have observed many instances where cancer has not only dis-

appeared but did not recur for a period of ten years and has shown no tendency to recurrence so far. My objective will rather be to discuss the rationale of this line of treatment in what I consider to be a fair and unbiassed manner.

Dr. Beard, the author of the trypsin treatment of cancer, if I understand him aright, was led to infer, from experiments he made, that the disease had some connection with a deficient production of trypsin. I say *production* of trypsin, as I think it can hardly be termed a secretion of the pancreas, seeing it may not be present at all in the gland at the time of its removal from the body. Yet, when this is allowed to remain exposed to the air for some hours, trypsin makes its appearance in considerable quantity. In short, it is a conversion of zymogen into this ferment, and, as we know, this change takes place in circumstances where it is an impossibility for secretion to be coincident. We are bound to admit that

it is a derivative of one of the most important constituents of the pancreatic juice. This fact does not, of course, detract in the least from its value as a digestive agent, but it points to the conclusion that if cancer is due to the absence or deficiency of trypsin, then we must look upon a disabled condition of the pancreas as the primary cause of cancer. To get at the root of the matter, however, we will be under the necessity of going further back still, and ascertain the cause of this morbid condition of the pancreas.

In this way we may possibly arrive at the source of the disease, and thus be enabled to deal with it satisfactorily as a whole, and not confine ourselves to the treatment of a symptom which the local manifestation of cancer undoubtedly is. It is this shortsightedness which has been the stumbling-block to previous methods of treatment, and will continue to prove fatal to all methods which do not aim at removal of those factors which have been

insidiously sapping the integrity of those organs which exert such an important influence upon healthy cell life. It is to this oversight that thousands of painful deaths are annually due, and which will continue to be perpetuated, no matter what local treatment be devised, if this does not go hand-in-hand with dietetic and general measures, which hold in view the relief of, and restoration to health of those organs whose functional activity has been prostrated by the persistent neglect of hygienic laws.

It cannot fail to be obvious to every observer, how miserably surgery has failed to give relief in cancer, and the result has been very much the same whatever local measures have been adopted and sole reliance placed upon them. For example, I have known of cases when the subcutaneous injection of a 1 per cent. solution of caustic potash has had a temporary marked beneficial effect in epithelioma, and Dr. Webb has re-

ported several cases of breast cancer which have been arrested by the injection of a solution of soap into the tissues, but I have not heard of any permanent relief being obtained by these measures.

It is not my intention to mention at this time my own method of dealing with this disease. This has been freely dilated upon elsewhere. What I wish to avoid, if possible, is the booming of a treatment which has not been in existence for anything like a long enough period to place it beyond the experimental stage. The public have had so many disappointments that it would be a pity to add another to the number, and though treatment by trypsin may, and will, I trust, prove a valuable adjunct to dietetic and constitutional measures, fail to apprehend how it can possibly, by its sole influence, have any permanent effect. Cancer is not a disease, so far as I can judge, due to any one cause, but to a chain of causes and effects made up of many links, each of which requires

special attention. Two circumstances have impelled me to communicate my views on this important subject. First the optimistic article, entitled "The Approaching Conquest of Cancer," which appeared in the *Pall Mall Gazette* of December 10th. Second, the fact of a lady coming to my consulting rooms two days afterwards, viz., on December 12, 1906, who was suffering from recurrence of cancer in the right side, upon which two extensive operations had been performed within one year, and when the condition of the parts were infinitely worse than they would have been had the breast been left alone. Well, this lady had just returned from Edinburgh, where she had been under the trypsin treatment for ten weeks, during which period the other breast had become involved, while the original site of the disease could hardly look worse than it did that day. This, however, being the only case I had up to that date seen after this treatment had been employed,

I certainly would not condemn it on that account. Indeed I am convinced there may be some value in it, as I have stated in my last book on the subject, but only as an adjunct to other methods which are of proved value, and the manner in which I trust it will prove of immense service is that the ferment, by attacking the weaker cells of the morbid growth, may destroy them, and thus arrest the local increase of the disease. If this can be accomplished while the healthy condition of the neighbouring tissue is improved by judicious measures, an important advance will have been made, because the colony or colonies of malignant cells, being thus rendered innocuous, will disappear by absorption. The vitality of the tissues will not, therefore, be diminished as would be the case if the disease had been removed by the knife.

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It would be well, I think in this connection, to glance for a little at the functional utility of the pancreas, espe-

cially in relation to the incidence of cancer.

This gland, as we know, is possessed of certain important functions, these being supplementary to those of the salivary glands and the stomach, so that it, as it were, is placed as a sentinel to watch over the contents of the stomach as they escape into the duodenum and complete the process of digestion where it has been deficient. This it will succeed in accomplishing, provided the food has not been in excess of the requirements of the body and of such a character as can be efficiently dealt with by the digestive organs. On the other hand, it should be borne in mind that if the blood is in a vitiated state, the pancreas, as well as other important organs, will, in consequence, have their functional activity seriously reduced, and, if this continues indefinitely, they may possibly be rendered incapable of fulfilling their duties, even to a limited extent. If the food is in excess in

quantity or contains a superabundance of albuminous material in an indigestible form, such as butcher meat, then, as a matter of course, that portion which is not dealt with by the digestive fluids will pass into the intestines as effete matter in a highly decomposable form. There, we know, it will be liable to undergo fermentation of a most noxious description. Now if this putrid mass is retained in the colon for an undue length of time—and this is invariably the case in persons prone to cancer—absorption of the fluid portion takes place and autotoxæmia is the result. The various organs of the body are, therefore, deprived of their normal pabulum and instead are supplied by a vitiated blood stream. Is it to be wondered at, then, that they fail to fulfil their important duties? And when it is remembered that the nervous system is necessarily handicapped from the same cause, we can easily conceive to what extent the resisting power to disease of any descrip-

tion is reduced. We are unable, therefore, to look upon trypsin as an antitoxin so far as cancer is concerned, though we are aware that the secretion of the pancreas, like that of the stomach and liver, is antiseptic to a certain extent. This antiseptic property, however, is quite incapable of preventing the formation of toxins in the intestine for the reason that, as a rule, the quantity of the food consumed is far in excess of the requirements of the body, and of a character which the various gastric secretions are quite unable to deal with in a satisfactory manner.

It would therefore, I think, be inaccurate if trypsin were described as an antitoxin, which I am informed has been suggested. The thyroid gland, on the other hand, possesses decided antitoxic properties, which fact has been frequently demonstrated. It was only a short time ago I was told by a gentleman, a surgeon had said that a motion of the bowels was only necessary once in three days. One can

hardly imagine it possible that any intelligent man would countenance so flagrant a contempt of such an important hygienic law as the daily evacuation of the intestinal canal most assuredly is. The very idea of carrying about in one's inside for three days a putrescent mass, which he would not tolerate for three minutes were it in sight, is beyond my comprehension. Depend upon it, it is ignorance regarding this maxim, and wanton disobedience to it, which constitute the primary factor to disease of all kinds and to cancer in particular. When, superadded to this, the most flagrant errors in diet are of daily occurrence, the danger is accentuated to a most serious degree. It is to these causes must be attributed to a great extent the failure of the organs of nutrition and the blood glands to perform in an efficient manner the important duties that have been allotted to them. The result is a departure from the healthy to a morbid condition of cell life in various parts of

the body, and we know this morbid tendency appears to be increased at the seat of an injury or prolonged irritation, by which the cellular tissue has been still further weakened. It is in such circumstances that cells which have departed from the normal standard are enabled to assert their depraved individuality and commence a new *rôle* of existence.

Now the effect trypsin is said to exercise upon these morbidly affected areas goes to prove the correctness of the views advanced by those who, for a long period, have maintained that a malignant cell is intrinsically weaker than a normal cell. It goes without saying, therefore, that if we can by any means instil an increase of vigour into the latter, we will be enabled to subdue that of the former, and this is one of the chief objects we should aim at in our endeavour to subjugate cancer. But by far the most desirable object to attain is its prevention, and this I hold is within the grasp of any one who will obey implicitly

those laws which nature has so explicitly formulated for our guidance.

The question naturally arises, Does trypsin only act on the local manifestation of the disease, and does it exert such a beneficial influence as to reduce the tendency to recurrence of the disease at a more or less remote period? Does it favour cell metabolism to the extent of removing the tendency to revert again to any future manifestation of malignancy either in its previous seat or any other locality? I fear not, as, so far as is known, trypsin or any other ferment is incapable of exercising this power. It is, then, to restoration of the functional activity of the thyroid gland, together with a judicious diet, abundance of fresh air, and careful attention to the hygienic condition of the lower bowel we must depend upon for recovery and maintenance of vigorous and healthy cell life. So far, we have no grounds for assuming that trypsin is capable of exerting any influence what-

ever upon cell metabolism, whereas we have the most conclusive evidence to prove that the thyroid gland not only possesses the power of inhibiting the effect of auto-toxæmia, but also exercises a most potent influence upon healthy cell metabolism. It is, therefore, of the first importance in the treatment of cancer to aim at restoring the functional activity of this gland, and at the same time to adopt measures which will reduce the tendency to the introduction of toxic material from the intestines. Now the latter can only be accomplished by adapting the dietary to the requirements of the body, and the capability of the digestive organs to effect its complete digestion and assimilation, together with the thorough evacuation of the effete matter at least once in the twenty-four hours. By this means the blood will be relieved of an incubus which otherwise would exist, and the various organs be enabled to obtain an uncontaminated blood supply,

which would enable them to resume their functional activity, and possibly restore their wonted efficiency. That the thyroid has an important relationship to the incidence of cancer is borne out by the fact that in cancer subjects it is invariably found to be more or less atrophied, hence it is necessary to supplement the modified dietetic measures recommended by the administration of either thyroid gland substance or its active principle—thyrocol. By these means, we have reason to hope, the gland may so far recover its lost power as to be enabled to resume its physiological activity; and this is quite within the range of possibility.

It must not be inferred, however, that the thyroid is the only organ whose utility is impaired in these circumstances. The salivary glands as a rule become more active, while hydrochloric acid is present in the stomach in very much diminished quantity, if it does not disappear entirely, and it is only reasonable to suppose that

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the pancreatic secretion is likewise to a certain extent in abeyance from the same cause. In this way we may account for the serious loss of weight which is so prominent a feature in cancer, seeing the digestion must obviously be seriously handicapped, and therefore the products available for assimilation reduced in quantity. And if the proteids have not been converted into peptones, but have passed into the intestines in a condition which favours decomposition, and therefore the development of enterotoxins, these, finding their way by absorption into the blood, will assist largely in giving rise to that condition which we term the cancerous cachexia, and as a matter of course will perpetuate the disease process by depriving the various organs of their healthy blood supply by substituting a toxic fluid. It is not the first time that I have sought to draw attention to the importance of this factor as a most potent predisposing cause of cancer, though perhaps not exactly

in connection with the treatment of this disease as suggested by Dr. Beard. And I am convinced that no treatment can ever prove successful without it is removed and not permitted to reassert itself. It matters not what treatment we adopt, even though it may appear to prove of service for a time, if we fail to restore the functional activity of those organs which have been permitted to lapse into an unhealthy condition.

No machine can possibly act efficiently unless all its parts are in good going order. So it is with the human organism. Doubtless it is capable of submitting to considerable ill-usage with an elasticity which is marvellous, but the breaking strain will assuredly be reached sooner or later, and, coincident with it, those morbid changes which we term disease, be it malignant or otherwise.

On December 12, 1906, Dr. Edmund Owen delivered a lecture at the Royal College of Surgeons on "Cancer: its Treat-

ment by Modern Means," in which he did not mention any of the "modern means" even by name. The only method referred to was that of surgery which, every one knows, has never in one isolated case given permanent relief, but has only succeeded in aggravating the suffering and shortening the life of the patient. He also spoke in anything but a charitable manner of those who have studied not only the local symptom of the disease—which is all the surgeon takes cognisance of—but the conditions which have led up to this. He would appear to apply the term "quack" to those who are just as well aware as he is that surgery has proved quite incompetent to deal successfully with cancer, but who have relied upon dietetic and therapeutic measures, and who in consequence have received much more encouraging results than surgery has ever been able to achieve. For my part, I would feel much more inclined to apply the term "quack" to a

man who takes a fee for an operation which he knows for a certainty will only result in failure. The surgeon *ought* to be aware of the fact, if he is not, that long prior to the local tangible appearance of the disease the conditions which have permitted this to assert itself were latent in the system, and that, in the majority of instances, a direct injury or prolonged irritation, weakening the part, permitted the disease to proclaim its presence in the enfeebled tissue. How, then, may I ask, can it be reasonably expected if no measures are adopted to remove the *casus morbi*, that the greater injury, caused by the knife, will not have a much more disastrous effect upon the vitality and resisting power of the mutilated tissues?—thus inviting recurrence which invariably is the sequelum.

We have now learned that cancer, as we recognise it, is the culminating point of a series of changes which have taken place, *seriatim*, in certain important organs,

consequent, in the first instance, upon their being compelled to rely upon a vitiated blood supply, this having been brought about to a great extent by gross negligence of hygienic laws and over-indulgence in articles of diet which are unsuitable to our digestive apparatus.

A PROBLEM

CHAPTER XII

A PROBLEM

It has been assumed that trypsin must necessarily be of no avail in the treatment of cancer from the fact that the pancreas, from which it is derived, is frequently the seat of this disease. That, however, is no argument against the possibility of this ferment being of value in the treatment of the local outcrop of cancer, because, before the malignant tendency has developed, the secreting power of the gland will have practically ceased in consequence of the long-continued toxic condition of its blood supply, which has for some time been gradually undermining its physiological integrity.

Now it is impossible for this to continue for any length of time without a serious falling away from the healthy standard being the result, and eventually a pathological condition being established. In such circumstances, then, the pancreas will be just as liable as any other gland, subject to similar conditions, to become the seat of malignant disease.

Until we make up our minds to acknowledge the fact that cancer takes its origin in a faulty condition of the alimentary canal, induced, firstly, by burdening it with work which it is incapable of performing, and, secondly, by permitting the retention of a noxious, decomposing, and toxic mass to remain for an undue length of time within its walls, through which its toxins gain access to the blood, and there exert a most pernicious influence upon its essential constituents, we can never hope for physiological harmony to continue, and disease will be the inevitable consequence. Will any one be so

bold as to deny this? Why, then, do we persist in ignoring what, after all, is only common sense?

Since writing the above a paper has been sent to me containing an article inspired by Dr. Senn, one of America's most famous surgeons. In lecturing on "Cancer and its Cure" to his students at the University of Chicago, he brands men who hold views on the treatment of cancer which differ from his own as "men with consciences irremediably blunted," and he dogmatizes in a way which demonstrates most clearly that he has not given much attention to the natural history of the disease. At the same time he ignores the fact—for fact it is—that in no single instance has either he or any one else known the knife to succeed in removing cancer or preventing its recurrence. On the other hand, I can produce a number of instances where medicinal and dietetic measures have succeeded in accomplishing this happy result, aye, and in cases which

have been refused operation in consequence of the disease being too far advanced to warrant such a proceeding. During a period of fifteen years I had innumerable opportunities of operating upon cancer patients, and it was because I never had a case where recurrence did not take place—nor could I hear of any other surgeon being more fortunate—that I determined, in 1894, never to operate in malignant disease again. Since that period, notwithstanding what Dr. Senn has stated, I have seen many cases recover from the disease, whilst, on the other hand, those who have been treated surgically have, without exception, had their sufferings aggravated and their lives shortened.

Dr. Senn, for whom, as a surgeon, I have the greatest respect and admiration, has arrived at certain conclusions, which are as erroneous as they are contradictory, from his own showing. He, like other surgeons, confines his treatment to a

symptom, ignoring the disease, and only takes cognisance of the local manifestation of its presence in the system. Would he for a moment suggest that by the removal of a tubercular gland he would succeed in curing tuberculosis? And this *is* a parasitic disease, which he is bold enough to affirm cancer is also. This, however, is only an assertion on his part, as this source of cancer has never been proved, nor will this ever be found to be accountable for its existence. No parasite has, nor will be discovered in connection with this disease. Its natural history excludes the probability even of such a theory being verified. Besides, what benefit can possibly be conferred by operating for a parasitic disease? Surely it does not require a surgeon to answer that question, and yet Dr. Senn proclaims it to be a parasitic disease, and declares at the same time that operation is the only remedy. Unfortunately Dr. Senn does not stand alone in thus dogmatizing. So much the

worse for the poor victims! Then Dr. Senn makes a statement which is absolutely correct, viz., that "primitive races are exempt from cancer." He does not explain, however, why this is the case, though he must know that the exemption is due to their diet and simple mode of life being more in conformity with those fundamental laws which, when observed, tend to promote healthy cell life.

He next goes on to state that "civilisation and luxurious living appear to have a decided influence in increasing the frequency of cancer." I would go further and say that "luxurious living," not civilisation *per se*, has not only "a decided influence in increasing the frequency of cancer," but is in *every* instance, when combined with the neglect of hygienic laws, the direct cause of its incidence. This, and not a parasite, is the source of cancer, and it is because there is more indulgence of the appetite and more neglect of the sanitary condition of the intestinal

canal in America and Europe than elsewhere, that the disease is more prevalent, as Dr. Senn avers it is, in these regions.

Furthermore, after having pronounced that cancer is a parasitic disease, Dr. Senn goes on to say, "the *real cause and true nature* of cancer are unknown, and will have to be ascertained by further observation and research." How are we to reconcile such paradoxical statements as these? I must confess I am unable to do so.

The only way to arrive at any correct scientific conclusion is to begin at the bottom and work upwards, not to commence at the top as has hitherto been the case in the study of cancer by surgeons. To obtain a correct view of this or any other disease, we must of necessity master their natural history and not jump to conclusions prematurely, and found these conclusions upon a single symptom. What would one think of a physician who, if he, finding a patient suffering from

a high temperature, treated the case in a routine way, and only gave heed to this universal symptom of fever, without for a moment going into the subject of its causation? Yet this is exactly how surgeons act in their treatment of cancer. They only treat a symptom, and, what is more, leave the patient in a worse position than he or she was in before.

But to return to Dr. Senn, who goes on to make a statement, which every one is cognisant of, viz., that "cancer manifests a decided predilection for advanced life, the majority of patients afflicted with this disease being from forty to sixty years of age." With this bare statement he leaves the subject, and does not explain in any way whatever why such should be the case, as it undoubtedly is. It is this superficial and perfunctory method of viewing a terrible disease, and yet one, I am convinced, which is not only curable, without the knife, but preventable also, that makes one so indignant. As a rule no

measures are adopted or recommended whereby recurrence might be averted, and thus possibly a happy result be attained. On the contrary, the surgeon has done the operation, has pocketed his fee, complacently mollifying his conscience by making himself believe that he has done all surgery can do in the circumstances, though he knows, all the time, that he has not succeeded in conferring one particle of benefit on the patient, and that sooner or later—but more certainly sooner than later, when surgery has had its innings—the disease will reassert itself, and that in a more virulent form than would have been the case had the parts been left alone. Moreover, the sufferings of the patient will in consequence have been aggravated, and his or her life shortened in the majority of instances. Yet this blunting of the conscience goes on year after year, and if one lifts up his voice and proclaims there is a more rational, a more successful, a less painful and a less

humiliating method of treating cancer, and that without mutilation, the man is set down either as a madman or a quack. All I can say is, I would, for the sake of all concerned, there were more such madmen and quacks. Fortunately, however, they are neither the one nor the other, but men who not only know what they are talking about, but who are able to substantiate every statement they make.

I know I am at present like one crying in the wilderness, but it is a wilderness of error, perversity, prejudice, and ignorance—the only vegetation it can boast of. Be assured, however, that the good seed sown will ere long make that same wilderness, like the desert, blossom as the rose.

But why has cancer a decided predilection for advanced life? Just because that, like everything else, there is not so much elasticity when maturity has been attained as there existed during the process of growth. Notwithstanding this, however, the mature plant, or tree, or animal can

be maintained in a healthy condition if it be subjected to fair play, and its physiological activity is encouraged by judicious measures; otherwise the tendency will be towards a departure from the healthy standard. And it is because the human body does not obtain fair play when this becomes more essential to its integrity, than was the case during its period of growth, that cancer tends to manifest its presence at a later period of life. It is when maturity is established, and cell life becomes more routine in its existence, and therefore more dependent upon the healthy and constant physiological activity of those organs which preside over normal cell metabolism. This duty, however, these organs are unable to fulfil in a satisfactory manner if they on their part are deprived of a healthy blood supply, and receive a toxic fluid in its place. Now it is entirely due to the persistent contravention of dietetic and hygienic laws that is accountable for this depraved condition

of the blood stream, and the pernicious effects upon the functional activity of not only the blood glands, but also upon the organs of digestion and assimilation and the nervous system. How, then, is it possible in such circumstances to expect normal cell life to continue? Then when we consider how seriously the blood itself is affected by the continuous absorption of enterotoxins, which are produced in such enormous numbers where an excess of highly decomposable substances have been thrust into the stomach, which it cannot possibly digest, therefore, for the most part, these must of necessity pass into the intestines, there to undergo putrefactive changes. Can we wonder, then, that disease is the result? Not only are the red corpuscles rendered incapable of performing their important duties in a satisfactory manner, but in many instances are destroyed in large numbers; while those important organisms—the leucocytes, are also seriously affected and handicapped,

and to such a degree that it is impossible for them to perform their scavenging duties to anything like an efficient extent. And so matters go on from bad to worse, till eventually pathological changes supplant those of a physiological and normal character. Cancer, then, is one of the inevitable results, if a halt is not called before the mischief has proceeded too far. In other instances it may be rheumatism, gout, eczema, or dyspepsia, any of which may prove a blessing in disguise.

Dr. Senn goes on to assert—but it is only an assertion without the slightest foundation in truth—that “cancer is a local disease in the beginning, becoming general by its extension through the lymph channels and the general circulation.” It is hardly necessary for me to confute such a statement at this time of day, seeing I have dwelt so frequently upon its pathogenesis on many previous occasions. I must confess, it is far beyond my comprehension to understand how a man can

stand up and dogmatise in this manner, when it has been demonstrated over and over again, as Dr. Senn admits, that primitive races are exempt, and that luxurious living has a decided influence in increasing a *tendency* to cancer; then, that it is a parasitic disease—which, however, is a mistake; then again, that its true nature and cause is unknown. What authority, I ask, has he for stating it is a local disease in the beginning? I admit he is right so far, when he states that it may and does extend through the lymph channels and the circulation. This however can be, and has frequently been, averted, even after its local manifestation has taken place, and not only that, but it can be, and frequently has been completely eradicated by the very means Dr. Senn contemns, and this I assert without any fear of contradiction, and am willing to prove any day.

Furthermore Dr. Senn makes the sweeping assertion that “internal medication”

—by which I hope he includes dietetics and the strict observance of hygienic laws —“is useless in inhibiting, arresting, or curing the disease.” Now, how does he know this? Is he aware that cancer has frequently been known to disappear without any treatment at all? How, then, is it impossible, if we can ascertain what the favourable conditions were, which tended to promote this happy result, and endeavour to produce these, that cancer can be not only arrested but cured? We certainly are quite unable to force Nature in these circumstances, just as we might make a purgative act; but we are not without the means of assisting her, and I am thankful to say we are in the possession of such means, and that these means have proved successful not only in my experience, but in that of others also. Where would we be, I wonder, if every one were content to sit with their hands on their knees, looking before them into vacancy, and quietly give acquiescence to

dogmas promulgated and insisted upon by men who have palpably given little or no attention to an analysis of the subject on which they express so emphatic an opinion? Is it because they have not succeeded, or possibly never tried to succeed, that it is, in their opinion, impossible for any one else to be successful? Dr. Senn replies to this question in a manner which, on the face of it, is contrary to common sense. Here is his reply: "The only rational and successful treatment of cancer *during its early stages*"—the italics are mine—"consists in the radical removing by excision every vestige of cancer tissue." Now, as Dr. Senn himself states as his opinion—and it is only an opinion—that "the real cause and nature of cancer are unknown," how can he satisfy himself that the cause does not remain after the removal of the local mischief? Indeed, we know it does remain, and I will challenge Dr. Senn or any other surgeon to point to a *single*

case of cancer which has been operated upon, in which recurrence has not taken place at the very seat of operation, and usually, in the first instance as I have stated, in a tissue which was non-existent prior to the operation, viz., the cicatrix. As I have affirmed on many occasions there is no *one* cause of cancer. It is due to a chain of circumstances, which have led up to a culminating point which is a departure from normal cell metabolism, for which there has been substituted cannibal proclivities—and this has been brought about in the first instance by a vitiated condition of the blood, this having upset the physiological equilibrium of every organ of the body, but more especially that of the blood glands. Therefore the cause remains, even if one is successful in “removing every vestige of cancerous tissue,” which is highly improbable, though the incision be ever so wide.

Dr. Senn proceeds to condemn the

various caustics, clover, violet leaves, &c., and with him there I cordially agree. But afterwards; yes, immediately afterwards, he makes the statement which is extraordinary — after having previously affirmed that cancer is a parasitic disease — that “Cancer is not a microbic disease.” Is a microbe not a parasite, then? He then proceeds to condemn X-rays, but he does not refer to radium as being of assistance as a local measure which other observers have pronounced it to be. Lastly, he asserts that “trypsin was of no importance,” though I learn from another American paper he has never tried it. Whence, then, has he his authority?

See page 293 - re. "après"
conditions, try plain treatment.

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Bell, Robert

Health at its best v. cancer.

MHy

B

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